FOOD PRODUCTION AND CONSUMPTION PRACTICES IN A SELECTED GROUP OF NORTH CAROLINA HOMES

by

Cleo Brendle

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Approved by:

Mabel V. Campbell
Advisor

CLEO BRENDLE. Food Production and Consumption Practices in a Selected Group of North Carolina Homes. (Under the direction of MABEL V. CAMPBELL).

The purpose of this study was to determine the food consumption practices of 68 school girls and food production and consumption practices of 62 North Carolina homemakers.

Food consumption records were secured for one week. Data were analyzed to show pupil acceptance of foods, adequacy of the diets of both groups, and production and preservation practices of the homemaking group.

None of the pupils or families had an adequate diet. Whole grains were most inadequate in the diet of both groups, followed in order named, by green and yellow vegetables, and citrus fruits and tomatoes. The pupil diets were more nearly adequate in lean meat and eggs, and other fruits and vegetables. The family diets were better in milk and eggs.

Food production was adequate in from one-third to one-half of the families, and preservation of fruits and vegetables was adequate in one-half of the families.

In each of the above cases the food practices of the group who had training in home economics were superior to that of the other group.

ACKNOWLEDGMENTS

This study was made under the direction of Miss Mabel V. Campbell, Professor of Home Economics, Woman's College of the University of North Carolina, Greensboro, North Carolina, to whom the writer wishes to express her appreciation for her interest and guidance.

The writer also wishes to express her appreciation to those pupils and homemakers whose willing cooperation made this study possible.

C. B.

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Chapter I

Introduction

In the program for national defense much emphasis is put on the problem of nutrition. If our nation reaches its goal that everyone shall have a diet adequate for good nutrition, there must be increased food production as well as food consumption. Good diets are not only needed for strengthening defense, but for safe-guarding the health of the people. The many government projects in nutrition now in progress are accepted evidence of the importance of nutrition. Our president has stressed the fact that we must be well fed if we are prepared to meet any crisis that might be forced upon us. Nutrition should not only teach a knowledge of the kinds and amounts of foods that make for maximum health but should develop the desire to consume them. Better living can be had when the land is used to produce more food as well as money crops and when more of that food is preserved for the winter's supply.

"No comprehensive research has been reported on the comparative economic advantages of spending time in home production and preservation of food and other possible uses of that time. However Extension Specialists report that an improvement in family nutrition accompanies home production and home preservation of food. At the time of the World War, home production and home preservation were greatly accelerated. Possibly with increased emphasis on preparedness such motivation will again be felt."[1]

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[1] Justin, Dr. Margaret, "Food and Nutrition". Journal of Home Economics, Vol. XXXII, (1940), pp. 541-542.

Rountree says: "The aim of nutrition should be to make a student connect cause and effect, to feel less fatalistic about poor health, more interested in building up a strong resistant body, less inclined to blame heredity or contagion for diseases, less emotional about her health, more the master of her fate."[2]

The study of nutrition should also carry over into the home; the boy or girl should have some influence on the family nutrition and the economic expenditure of money for food. The student should be able to do a better job of selecting food and of supplementing food when necessary. The study of nutrition should not only carry over into the home but into the community as well since each family is a part of the community in which it lives.

Smillie and Howard[3] discuss a community nutrition service for the purpose of recognizing and correcting nutritional defects and for the promotion of normal nutrition in the community to prevent nutritional defects. They say "a broad eductional program in the principles of proper diets is the keystone of a sound and healthy nutritional status of the whole community, but some provisions must be made whereby the essential food elements may be supplied to those families who are so poor that they cannot provide the necessities of life."

In spite of the fact that there are surpluses in commodities which are commonly used in the home, school children in many sections of the

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[2]Rountree, Jennie I., "Home Economics as an Interpreter of Life", Journal of Home Economics, Vol XXVI, (1934) pp. 17-19.

[3]Smillie, Wilson G., Howard, M. D., "The Place of Nutrition in the Public School Health Program", Journal of American Dietetic Association, Vol. XII, (1937) pp. 527-536.

country go to school poorly fed.

"Four out of every ten farm families consume diets that are unsafe. Four out of ten Southern white families with incomes of $1,500 to $2,000 consume poor diets. In a recent study of the measurements of one hundred thousand children, it was found that in areas where poor diets were most common, the physical development of the children lagged most. Too many Southern families are not using their land to nourish their bodies. Of 3½ million farms in Southern States, more than 400,000 have no chickens, more than 900,000 have no milk cows, 800,000 have no gardens, more than 2 million have no plowable pastures for the feeding of live stock."[4]

It seems we must produce as well as consume if we are to have a civilization that is both rich in production and consumption. To what extent then can and should the teaching of home economics on the high school level effect pupil food practices and later family food practices? That is the challenging question which confronts every home economics teacher.

The purpose of this study was to determine the food production and food consumption habits of a group of North Carolina homemakers and the food consumption habits of a group of school girls part of whom had had training in home economics.

The author believes that this study will help her as a teacher of food and nutrition to know wherein her work can be strengthened, and to suggest points at which further cooperation between home economics teaching and other community agencies is needed.

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4 "The South Looks to the Soil", Consumer's Guide, (1939), pp. 3-5.

Chapter II

Review of Literature

The amount of malnutrition in the nation is great, even though there are surplus foods. During the years of the recent depression large quantities of wheat and other farm commodities were destroyed in order to help the farmer get better prices for his farm products, still the diets of the American people are inadequate. Even among those who can afford the best, many individuals suffer poor diets. Among the poorer families, whose incomes are below $300 a year, there is a vast amount of malnutrition. Such a situation inevitably lowers the health of the population.

For centuries restricted diets have produced manifest diseases, but it is only recently that it has been impressed on us that an inadequate diet exerts a profound influence in producing various borderline diseases, the symptoms of which are not always apparent.

Boyd [1] says, "Educational measures should be directed toward familiarity with relative food values. This should lead to the increased use of milk and its products, vegetables, and fruits. In rural areas the encouragement of home production of valuable foods and their preservation for use throughout the year would be most important. In urban areas it is necessary to familiarize members of the household with proper distribution of expenditures for food so that less may be spent for foods of low value and more for those which are more essential."

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1. Boyd, Julian D., "The Nature of the American Diet", Journal of Pediatric, Vol. XII (1938) page 243.

There seems to be a diffefence of opinion as to the effect of the income on the adequacy of the diet. Some studies show a close relationship between income and nutritional value of the diet while others find there is very little or no relationship.

Barker[2] found in her study of the adequacy of the diets of 100 rural families on three economic levels that none of the families included in the study were getting a diet that could be termed adequate, but that the degree of inadequacy was greatest for those on the poverty level, second for those on the moderate level, and least for those on the comfort level.

On the other hand Stiebeling and Coon[3] in a survey including 25,000 representative city, village and rural families found at every expenditure level above $100 per person per year, some families were able to provide very good diets. At the median expenditure level, which is $130 per person per year, almost one-half were eating a third-rate diet and almost another fifth a very poor diet. Three-fourths of all the families were at the $100 or more expenditure level but less than one-third of them were selecting very good diets.

According to Hambridge[4] "In order to give passable diets to the 50 per cent of the people who now have poor diets, we would have to consume on an average, 90 per cent more of leafy green and yellow vegetables,

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[2]Barker, Bessie E.,"A Study of the living Conditions of 100 Families in Limstone County, Alabama, on Various Economic Levels", Master's Thesis, Alabama Polytechnic Institute, (1934).

[3]Stiebeling, Hazel K. and Coon, Callie Mae, "Present Day Diets in the United States". Food and Life - Agriculture Year Book (1939)pp.296-308.

[4]Hambridge, Gove, "Nutrition as a National Problem", Journal of Home Economics, Vol. XXXI, June (1939) pp. 361-364.

70 per cent more butter, and 20 per cent more milk, 35 per cent more eggs. This would still leave only 10 to 20 per cent with good diets, but it would mean that the remaining 80 to 90 per cent would be above the nutritional danger line."

It is not true that 50 per cent of our people are below the danger line for economic reasons alone. One reason for poor diets is that some of the people do not know how to select the most nourishing foods for the money. Other reasons might be habit or that they don't think it important enough.

Hambridge[5] says, "As far as capacity for food production in America is concerned, it is perfectly feasible for all the people in this country to achieve a high nutritional standard. In order to achieve these standards it is necessary to raise the purchasing power by any feasible way, to the point where everyone can afford a fair or good diet and to educate the people to the meaning of good nutrition and its importance in their lives."

The White House Conference on Child Health concluded that the alarming proportions of malnutrition existing among the school children in America is due, not so much to poverty as to ignorance of dietary principles.

Hawley[6] says "the optimal diet should be the objective. It should supply all the food constituents in liberal amounts to assure an optimum state of nutrition. The school lunchroom should be planned to

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5 Ibid - p. 363

6 Hawley, Estelle E., "Nutritional Standards for the School Lunch", Journal of American Dietetic Association, Vol. XV, (1939) pp. 96-100.

supply the constituents which are generally lacking in the diets, and when price is important substitution of cheaper foods should be made."

Even though nutrition has been taught these many years, some studies show very little or no "carry-over" into the homes, while other studies show some evidence of use made of home economics training.

Stone[7] made a study of the improvements of the nutrition of high school students through home economics training. Her study showed weight gains in both of the groups studied, and a decided increase during the semester in the number eating the types of breakfast and lunch classified as "good". The conclusions were that the food and health habits of high school students may be improved by dietetic instruction based on their nutritional needs and that lack of control of home conditions may effect nutrition changes.

Jones[8] found from her study of the dietary records of 678 high school girls that there was a higher percentage of the home economics group than of the other group which ate foods that were desirable, but stated that this could not be attributed to home economics training alone.

To determine the extent of the "carry-over" of home economics training, Botto[9] made a study of the food habits of 275 high chool students who had formerly had home economics. She concluded that the

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[7] Stone, Lola, "Improvement of the Nutrition of High School Students Through Home Economics", Master's Thesis (1929).

[8] Jones, Mildred L., "The Food Habits of 678 High School Students in Iowa", Master's Thesis (1934).

[9] Botto, Mildred, "The Effects of Home Economics Training Upon the Food Habits of High School Students", Master's Thesis (1932).

findings seemed to indicate that previous home economics training had little effect upon the food habits of the group studied.

O'Neal[10] studied the home activities and health habits of former students of home economics and found that the results indicated a retention and use of school instruction in home activities and health habits.

Poor nutrition has its effect on the behavior of the individual as well as on society. The state of Washington has required of all high school girls a year of home economics, not to acquire home skills but to help girls interpret the problems of adult life more clearly. Many of the household tasks have been taken out of the home and the skills and techniques must be replaced by an understanding of the economics of consumption and the responsibilities of the consumer.

Coon[11] has said "The purpose of all education is to promote growth and development of the individual along lines needed by society."

Justin[12] says that "every part of the curriculum should help the individual to become an integrated personality able to stand the physical, mental and social stress of our times." Young people need to understand, as far as possible, why economic insecurity creates tension in family members and how they may help by conserving funds, by giving sympathetic understanding, and by assisting in providing the kind of home atmosphere which releases tension.

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10 O'Neal, Geneva, "The Use Made of the Home Economics Training by Pupils and Graduates of the Lenoir City High School" Master's Thesis(1933)

11 Coon, Beulah I., "Criteria for Evaluating Content in Home Economics" Journal of Home Economics, Vol. XXVI, (1934) pp. 142-148.

12 Justin, Margaret, "Trands in Home Economics", Journal of Home Economics, Vol. XXI, (1929) pp. 711-716.

Zuill[13] says "The failure of the home to fit into the pattern of society lessens its opportunities for a real contribution to the lives of the family members. Successful home life depends upon satisfactory relationships and home economics courses should emphasize the factors in home living that produce these relationships."

"Economic and social factors are concerned with adequate nutrition. They influence food habits, the appetites of the workers, the needs and craving for special kinds of foods. To serve the patient we must therefore begin with full knowledge of his social and economic background. The every day needs of the family must be considered. Food is an integral part of our lives. The pattern of good behavior is our patient, whether it be good or poor, favorable or unfavorable to dietetic treatment, it is the product of his background. It is affected by many factors, chief of which are the income, the struggle for the necessities of life, for suitable conditions for sleep and rest, cleanliness, a pleasant home, conditions of employment, opportunities for healthful recreation and reactions to experiences. Health is dependent upon nutrition in terms of social and economic factors, and adequate food cannot be obtained on a budget that does not consider other needs as well." [14]

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[13] Zuill, Frances, "Does Home Economics Function in the Modern Home?", Journal of Home Economics, Vol. XXIV, (1932) pp. 671-678.

[14] Editorial, "Economic and Social Factors Influencing the Diet", Journal of American Dietetic Association, Vol. XII (1937) pp. 466-468.

"Man's future depends on what he decides to eat is a prediction of Dr. George R. Minot of Boston. Investigators have learned what should be eaten for good health and growth and even for long life and improvement of the race. Foods that are filling and energy giving, like meat, potatoes and bread are not enough. In addition the diet should include what are called 'protective' foods, dairy products, fresh fruits and vegetables, because they protect us from serious ails such as scurvy, beri-beri and rickets and from many minor degrees of malnutrition and poor health. Statistics of food supply for the past two decades show a shift toward greater consumption of these protective foods. Because of this shift, nutritionists believe that boys and girls are entering college better developed at a slightly earlier age than their parents. Not enough, however, are making the three-times-a-day decision as wisely as might be."[15]

Studies have been made to find out points in which the dietary is inadequate, both in quantities and qualities of foods and food stuffs. If teaching is "changing one's behavior" we have a lot of teaching yet to do in regards to the dietaries of the American people if they are to be raised above the danger line. The lack of knowledge of food and food needs is not the only factor concerned with inadequate diets but the writer believes it to be an important one.

"A survey of the dietary habits of 360 college women at the University of Wisconsin in 1937 showed that many of the accepted food rules had been violated by this group. The study indicated that only

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15 "Comments on Current Science", Scientific Monthly, Vol. XLVI, (1938), p. 374.

61.1 per cent of the subjects had one cup of milk or more daily, only 35 per cent of the young women ate white potatoes each day, over half of the group had a green or yellow vegetable at least once a day, 31.1 per cent met the requirement for citrus fruits or tomatoes, only 17.5 ate one egg per day, and only 22.5 per cent had an many as seven whole grain products per week."[16]

Hosman[17] in a nutrition study of the consolidated schools in Nebraska, found 25 per cent of the diets lacking in fruit, 66 per cent lacking in eggs, 40 per cent had no milk to drink, 64 per cent had less than 1 pint of milk per day, and 69 per cent were lacking in vegetables. Inadequate breakfasts were received in 54 per cent of the cases and inadequate lunches in 50 per cent.

Cooprider[18] in her study of 100 high school girls and 100 college women in Kansas found that all diets were, according to accepted food rules, deficient in eggs, milk, whole-grain products and water.

"A study was made of 100 Utah State Agricultural college women students, some of whom were living at home, some boarding, some in bachelor quarters and some living in the dormitories. It was found that the diets of all groups were generally lower than the standards used for comparison. The dietaries of all groups showed consistent

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16 Meiller, Ella Jane, "Survey of the Dietary Habits of College Women", Unpublished thesis, University of Wisconsin (1937).

17 Hosman, Ione Edna, "A Nutrition Study of Consolidated Schools in Nebraska", Master's Thesis, University of Chicago, (1929).

18 Cooprider, Muriel, "The Dietary Habits of Selected Groups of High School Girls and College Women Living in Kansas", Master's Thesis, Kansas State Agricultural College, (1940).

deficiencies in phosphorus, iron, vitamin B and ascorbic acid."[19]

Latzke found that the diets selected by college students from a college cafeteria showed a definite lack of vegetables, a lack of fruit and too much carbohydrate food. Women's diets were lacking in milk and whole grain cereals. Foods rich in vitamin C and iron were particularly lacking.[20]

Hedges in her study of the nutrition practices of married former high school home economics students reported a failure to use a sufficient quantity of vegetables. Eighty-one per cent of the men and 86.9 per cent of the women were not getting enough vegetables, 45.9 per cent of the men and 46.1 per cent of the women were not getting 1 pint of milk daily, 59.4 per cent of men and 56.4 per cent of women were not getting enough fruit.[21]

Hoan[22] found from interviewing 55 men and 68 women students at State Teachers College in Plattville, Wisconsin, who prepared their own meals that 67 per cent of the men and 44 per cent of the women were using one pint or more of milk daily, 10 per cent of men and 35 per cent of women did not drink milk at all. Thirty-eight per cent of

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19 Morris, Sadie O. and Powers, Mildred, "A Study of the Diets of One-hundred College Women Students", Journal of American Diet Association. Vol. XV, (1939), pp. 362-358.

20 Latzke, Esther, "A Study of Diets Selected by College Students From a College Cafeteria", Journal of Home Economics, Vol. XXVI, (1934),

21 Hedges, Edna Lucas, "The Nutritional Practices of Married Former High School Home Economics Students", Masters' Thesis, University of Oklahoma, (1936).

22 Hoan, Irene M., "Food Problems of Students who do Light Housekeeping", Journal of Home Economics, Vol. XXXI, (1939) pp. 100-1.

students did not eat two kinds of vegetables other than potatoes daily. Only 32 per cent of men and 89 per cent of women served fruit once a day, 20 per cent of the students served only white bread, 36 per cent of all the diets contained whole grain cereals.

Haws[23] found from her study of 42 high school girls that 26.9 per cent had more than a pint of milk daily and 18.7 per cent had no milk at all, 25.4 per cent had two vegetables daily, 4.8 per cent were getting no vegetables, 35.6 per cent had less than one serving daily, 14.6 per cent had no fruit, 43 per cent had fruit once a day, 33.3 per cent had cereal once a day, 26.1 per cent had no cereal, 60 per cent averaged more than one serving of meat a day.

In Reynold's[24] study of high school students in Tennessee it was found that the foods most frequently used were meat, cheese and dried peas. The vegetable foods ranked second. About 20 per cent reported no vegetables during the day. Twenty-five per cent had no eggs, 33 per cent had no milk, 40 per cent had a pint or more daily, 35 per cent had no fruit, and only 16 per cent had citrus fruits, 79 per cent had no whole grains and 98 per cent recorded no use of butter in their diets.

From these studies the most common deficiencies in the diets are milk, vegetables, fruits (especially citrus fruits), butter and whole

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23 Haws, Loys Chloe, "The Dietary and Nutritional Habits of the High School Girls of Rocky, Oklahoma, University of Oklahoma, Master's Thesis (1937).

24 Reynolds, Doris Marie, "The Dietary Habits of High School Students in Nine Counties in Tennessee", University of Tennessee, Master's Thesis (1939).

grain products. From the results of these studies it is evident that the home economics teacher should place more emphasis upon the use of foods which are available or which could be available to the usual rural family.

If the nutritional status of the American people is to be improved, and if the people are to build toward national defense, more food must be not only produced, but some way must be found to make it possible for more people to have access to that food. The government,as well as other agencies, has done much to encourage better diets through "Live at Home programs" and other programs which stress the use of reinforced foods, such as flour, fat, cereals; the distribution of farm surpluses through the welfare agencies, and the use of the food stamp. Free school lunches have been provided for many needy children.

The city of Boston inaugurated a low-priced milk program in an effort to get the people to use more milk. The North Carolina Health Coordinating Service has definitely attacked the problem of providing adequate diets for group of undernourished children and of developing a nutritive program in the grade schools.

The Arkansas State council of Home Demonstration clubs met in September 1940 to discuss the responsibilities of farm women to national defense. They agreed that better food, better health, and better homes were defense measures, that "the first line of defense for any farm family is better health through a well-planned, home-grown food supply", that the live at home program should be given renewed emphasis in 1941. The responsibility of the community, family, and

individual in building for better health through better diets is recognized by the rural homemakers who are carrying out this program. They see that learning what the local live-at-home program really is and how to attack the problems it presents is largely the responsibility of the community; that production and storage of the food supply is a family responsibility; that planning and preparing nourishing meals depends largely on the home-maker; and that it is up to the individual to build good selection habits as a means to good health.[25]

Cooperative effort such as is recommended by these Arkansas farm women has become a reality in many communities. Under the leadership of the Farm Security Administration, an entire community consisting of 50 white and 50 negro families has, through cooperative effort, been made over. Living conditions were improved 100 per cent, food production greatly increased, diets made adequate, and attitudes of the people very much improved.[26]

Another community in Caswell County, N. C. has launched a large cooperative project designed to improve nutrition standards. Under the joint sponsorship of the Farm Security Administration, Agriculture and Home Economics Extension Service, and Agriculture and Home Economics teachers, a county-wide Land Use Planning Project has developed. Its purpose is to improve farms, increase production, and preservation, and

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25 Longhead, Mary E., "Preparedness on the Farm Home Front", Journal of Home Economics, Vol. XXXIII, (1941), pp. 328-9.

26. Chase, Stuart, "From the Lower Depths", Reader's Digest, (1941) pp. 108-112.

thereby improve the diets of these families.[27]

To what extent do homemakers and girls who have had training in home economics have better dietary practices than those who lack this training? An answer to that question should help the writer, who was the home economics teacher in this situation, know where to begin to improve her teaching procedures.

27"We Take You Now to Caswell County", Consumer's Guide, (1940) pp. 3-10.

The Study

This study consisted of two parts: A study of food consumption practices of 68 school girls, and a study of food production and consumption practices of a group of 62 homemakers.

Part I. Food consumption practices of school girls.

Method

The data concerning food consumption practices were secured through the use of a questionnaire from a group of 68[1] seventh, eighth, ninth and tenth grade girls from the Clemmons School, Clemmons, North Carolina. Data concerning personnel of this group-age, grade placements, home economics training, source of noon lunch, will be found in tables 1 and 2.

Table 1. Number of pupils classified according to grade, age and amount of home economics training.

Grade	Number	Age	Number	Amount of Home Economics Training	Number
seventh	17	twelve	7	None	19
eighth	13	thirteen	10	½ year	10
ninth	18	fourteen	14	1 year	10
tenth	20	fifteen	20	1½ years	9
		sixteen	17	2 years	20
total	68		68		68

1. Seventy-five questionnaires were given out and 68 or 90.6 per cent of usable copies were returned.

Table 2. Percentage of school lunches secured from various sources.

* 3 Pupils failed to give this information for any day.

	Number	Per Cent
Total lunches*	325	100
brought from home	40	12.3
supplement home with school	188	57.9
from school lunch	97	29.8
purchased in community	0	0

The questionnaires were distributed by the writer directly to the girls either through groups or individually. The purpose of the study was explained, and instructions for filling in the questionnaires were given. The food consumption records which were kept for one week included the lunch eaten at school, the two meals at home for the five school days, and all three meals on Saturday and Sunday, plus all food eaten between meals. The questionnaires were collected by the writer at the end of the week. The manager of the cafeteria furnished a record of all foods served in the school lunch during the week.

The data were analyzed to show:

1. The number and percentage of pupils who used various groups of protective foods a given number of times during the week, classified according to home economics training.

2. The number and percentage of pupils who accepted various groups of protective foods a given number of times during the week, classified

according to home economics training.

3. The number and percentage of pupils who ate various foods between meals, also the average number of times that they were eaten.

In determining frequency of the use of certain foods:

1. The foods eaten were classified into the following groups: milk, meat, eggs, fish and poultry, green and yellow vegetables, citrus fruits and tomatoes, other fruits and vegetables, whole grains. (The other foods eaten were disregarded in the analysis.)

2. The number of times each group appeared during the week in the diet of each individual was determined.

3. The diet of each individual was then classified to show the per cent of each group of pupils who used each of the six groups of protective foods from 15 to 21 or more times per week, from 8 to 14, and from 0 to 7 times per week.

In determining the percentage acceptance of the food groups, the number of times given food groups were available to each child was figured on the basis of total number of times when any representative of the group appeared on either the school lunch menu or meals served at home.

Findings

A. Frequency with which pupils had used the various groups of protective foods.

1. As indicated in tables 3-4 and figures 1-6 there is considerable evidence that these pupils who were free to only a limited extent*

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* Pupils were limited in their choice to the noon lunches selected at school.

according to home economics training.

3. The number and percentage of pupils who ate various foods between meals, also the average number of times that they were eaten.

In determining frequency of the use of certain foods:

1. The foods eaten were classified into the following groups: milk, meat, eggs, fish and poultry, green and yellow vegetables, citrus fruits and tomatoes, other fruits and vegetables, whole grains. (The other foods eaten were disregarded in the analysis.)

2. The number of times each group appeared during the week in the diet of each individual was determined.

3. The diet of each individual was then classified to show the per cent of each group of pupils who used each of the six groups of protective foods from 15 to 21 or more times per week, from 8 to 14, and from 0 to 7 times per week.

In determining the percentage acceptance of the food groups, the number of times given food groups were available to each child was figured on the basis of total number of times when any representative of the group appeared on either the school lunch menu or meals served at home.

Findings

A. Frequency with which pupils had used the various groups of protective foods.

1.As indicated in tables 3-4 and figures 1-6 there is considerable evidence that these pupils who were free to only a limited extent*

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* Pupils were limited in their choice to the noon lunches selected at school.

to choose their foods do not have an adequate supply of all the food groups commonly referred to as protective foods.

a. Of great significance is the fact that 10.3 per cent of the group had no milk, 4.4 per cent had no green and yellow vegetables, and 33.8 per cent had no whole grain; and that 80.8 per cent had grean and yellow vegetables, and 66.2 per cent had citrus fruits and tomatoes only from 1 to 7 times per week, and only 10.3 per cent used whole grains as often as 8 to 14 times during the week.

b. that the milk supply is further limited is shown by the fact that 61.8 per cent used it only 1 to 7 times and 26.4 per cent used it only 8 to 14 times during the week.

c. on the other hand it appears that the supply of the meat group and other non-starchy vegetables and fruits was more nearly adequate as indicated by the following figures: 30.8 per cent used the former group 15 to 21 times and 54.5 per cent from 8 to 14 times per week, while 26.4 per cent used the latter 15 to 21 times and 47 per cent from 8 to 14 times per week.

2. There is considerable evidence that the pupils who had had one to two years of training in home economics had a more adequate supply of the protective foods than those who had either none or one-half year of home economics.

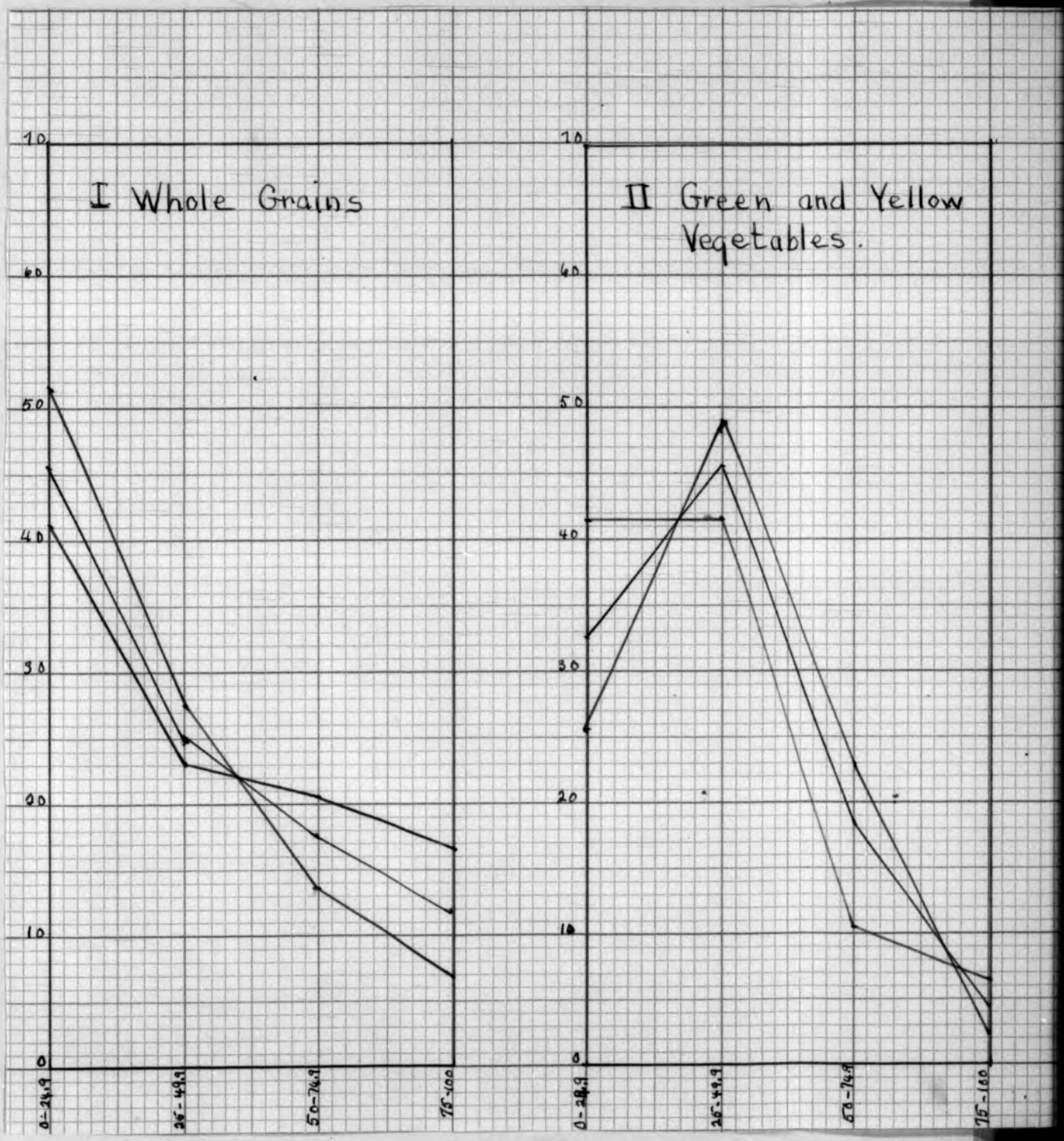
a. This superiority is especially evident in the milk and whole cereal supply. Thirty-five and eight-tenths per cent of the former group as compared with 13.7 per cent of the latter

Table 3. Number of pupils using various groups of protective foods a given number of times during the week. Classified according to home economic training.

	15 to 21 times			8 to 14 times			1 to 7 times			Zero times		
	Total	1-2 yrs.	0-½ yr.	Total	1-2 yrs.	0-½ yr.	Total	1-2 yrs.	0-½ yr.	Total	1-2 yrs.	0-½ yr.
milk	1	0	1	18	14	4	42	23	19	7	2	5
green and yellow vegetables	0	0	0	10	6	4	55	31	24	3	2	1
citrus fruits and tomatoes	0	0	0	22	13	9	45	26	19	1	0	1
other fruits and vegetables	18	11	7	32	20	12	18	8	10	0	0	0
whole grains	0	0	0	7	6	1	38	21	17	23	12	11
meat, eggs, fish, poultry	21	12	9	37	21	16	10	6	4	0	0	0

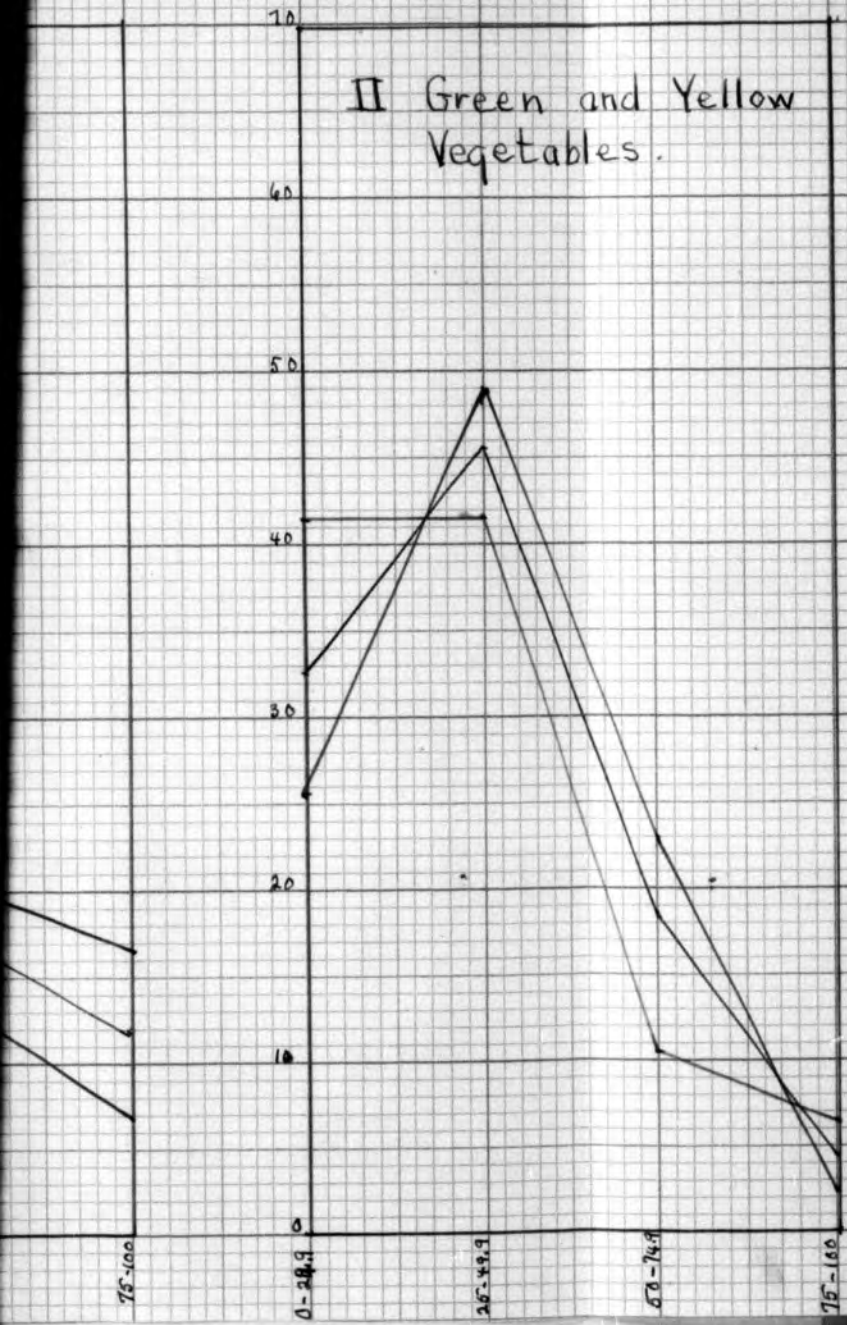
Table 4. Percentage of pupils who used various groups of protective foods a given number of times during the week. Classified according to home economics training.

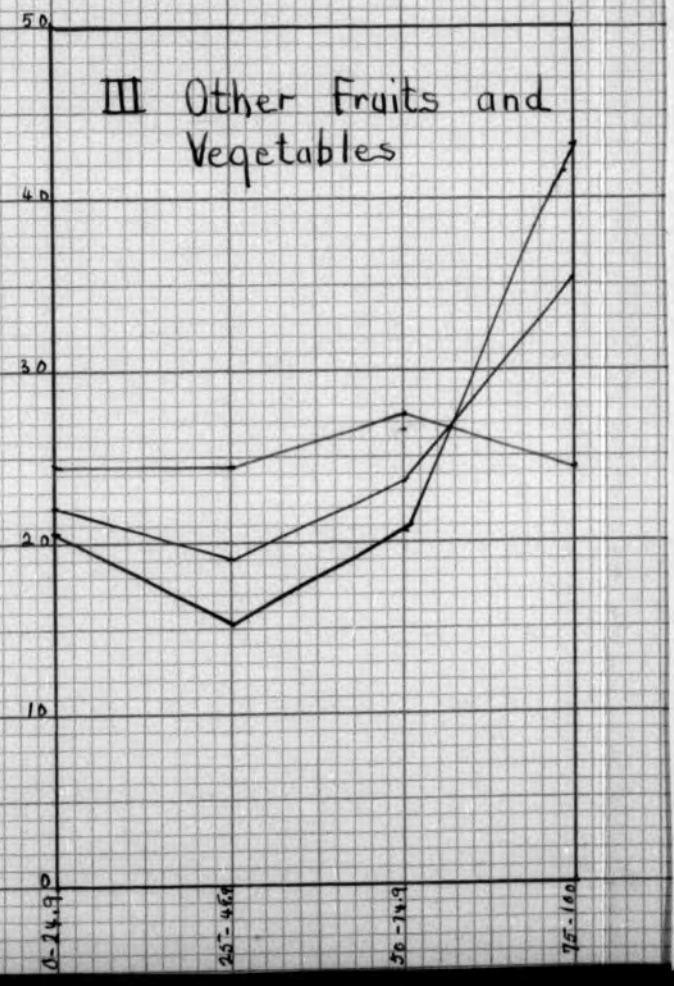
	15 to 21 times			8 to 14 times			1 to 7 times			Zero times		
	Total	1-2 yrs.	0-½ yr.	Total	1-2 yrs.	0-½ yr.	Total	1-2 yrs.	0-½ yr.	Total	1-2 yrs.	0-½ yr.
milk	1.5	9	3.5	26.4	35.8	13.7	61.8	58.9	65.5	10.3	5.1	17.2
green and yellow vegetables	0	0	0	14.6	15.4	13.7	80.8	79.4	82.7	4.4	5.1	3.5
citrus fruit and tomatoes	0	0	0	32.3	33.3	31.	66.2	66.6	65.5	1.5	0	3.5
other fruits and vegetables	26.4	28.1	24.1	47.0	51.2	41.4	26.4	20.5	34.5	0	0	0
whole grains	0	0	0	10.3	15.4	3.5	55.9	53.8	58.6	33.8	30.7	37.9
meat, eggs, fish, poultry	30.8	30.7	31.0	54.4	53.8	55.1	14.6	15.4	13.7	0	0	0


I Whole Grains
II Green and Yellow Vegetables.
10
60
50
40
30
20
10
0
0-24.9
25-49.9
50-74.9
75-100

Percentage of Pupils Who Accepted
Foods From Zero to One Hundre
Classified according to Home E

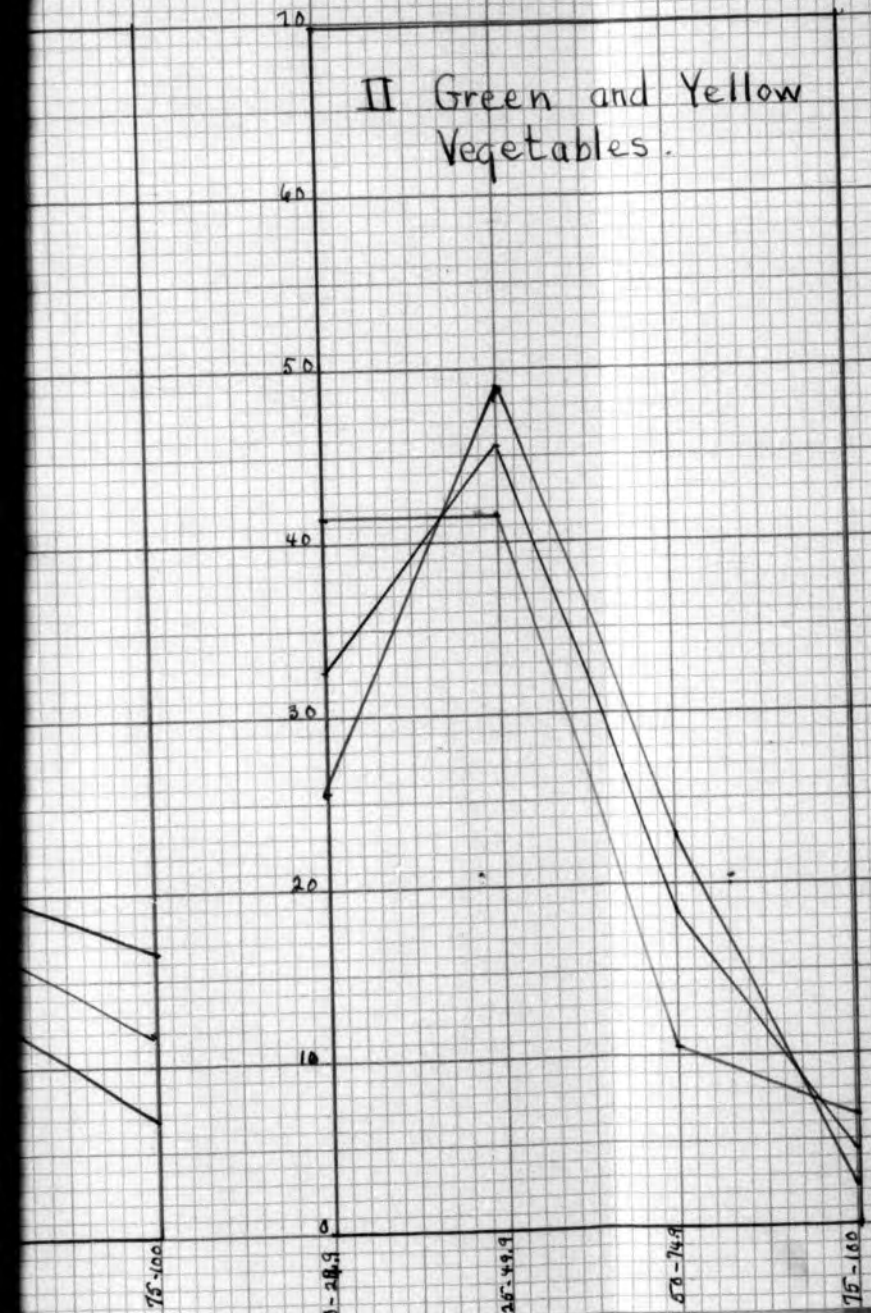
—No Home Economics —Home

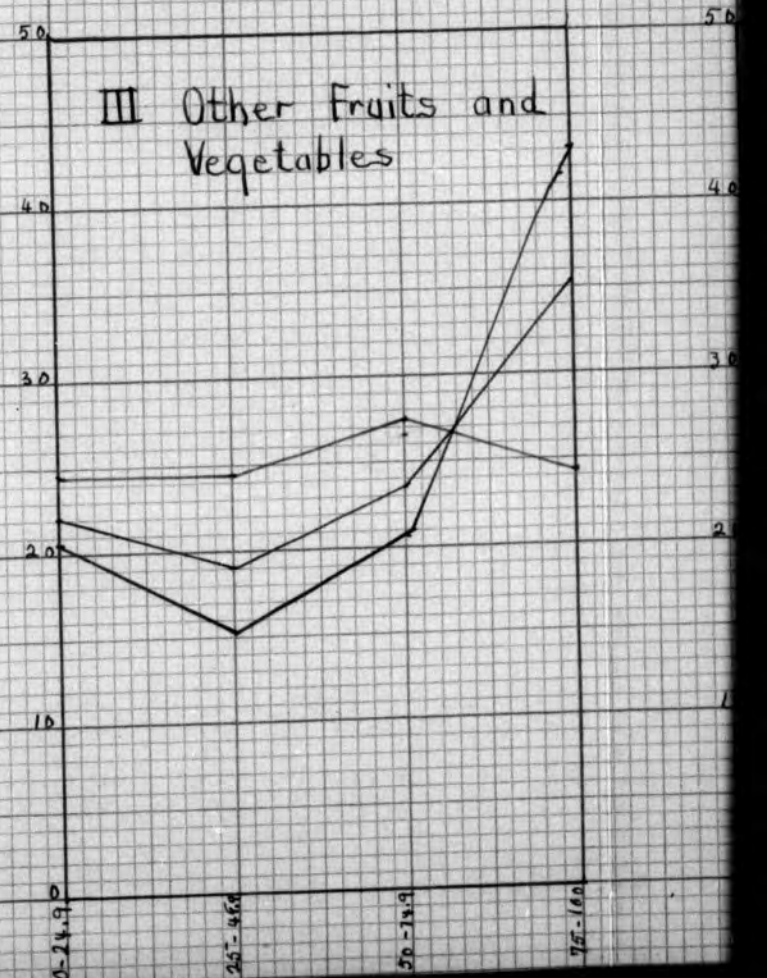




Percentage of Pupils Who Accepted Vari
Foods From Zero to One Hundred Pe
Classified according to Home Econ

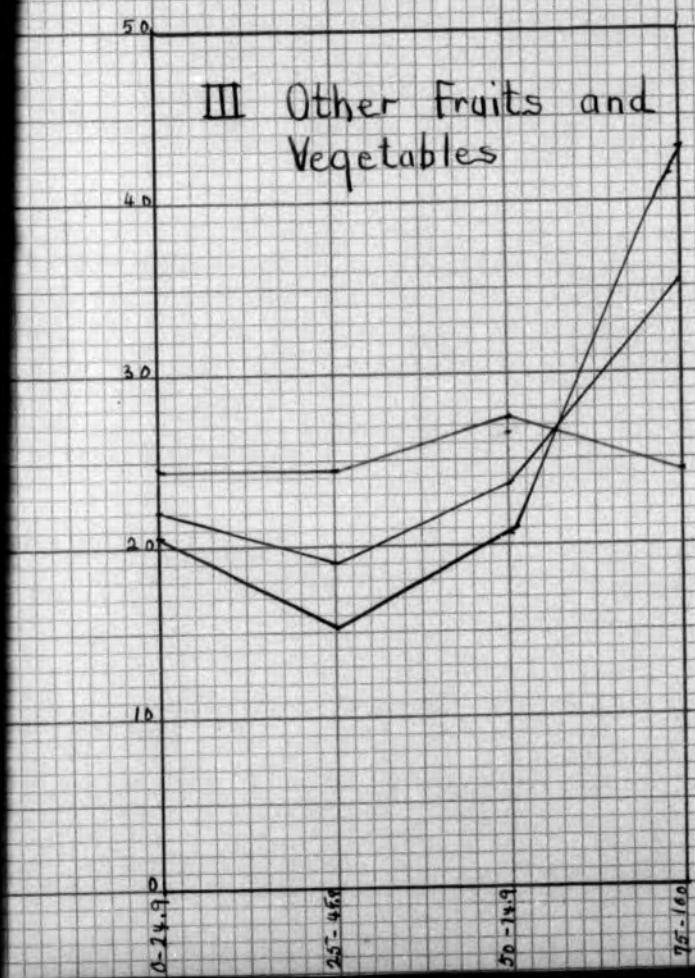
—No Home Economics —Home Econo

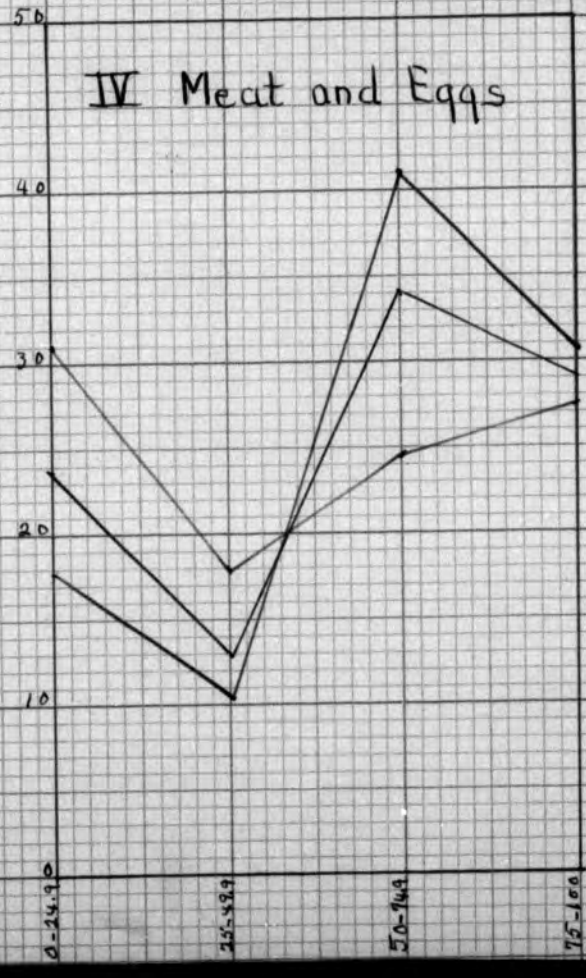


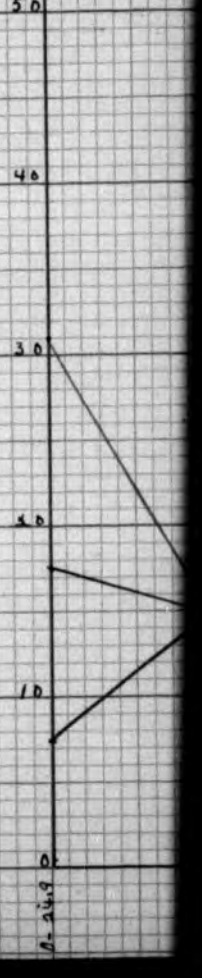


Percentage of Pupils Who Accepted Various Groups of Protective Foods From Zero to One Hundred Per Cent of Times Available. Classified according to Home Economics Training.

—No Home Economics —Home Economics —Total of Both Groups



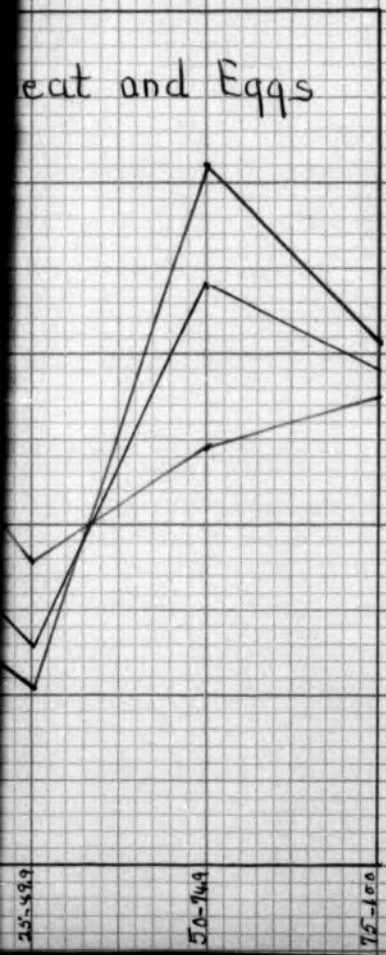




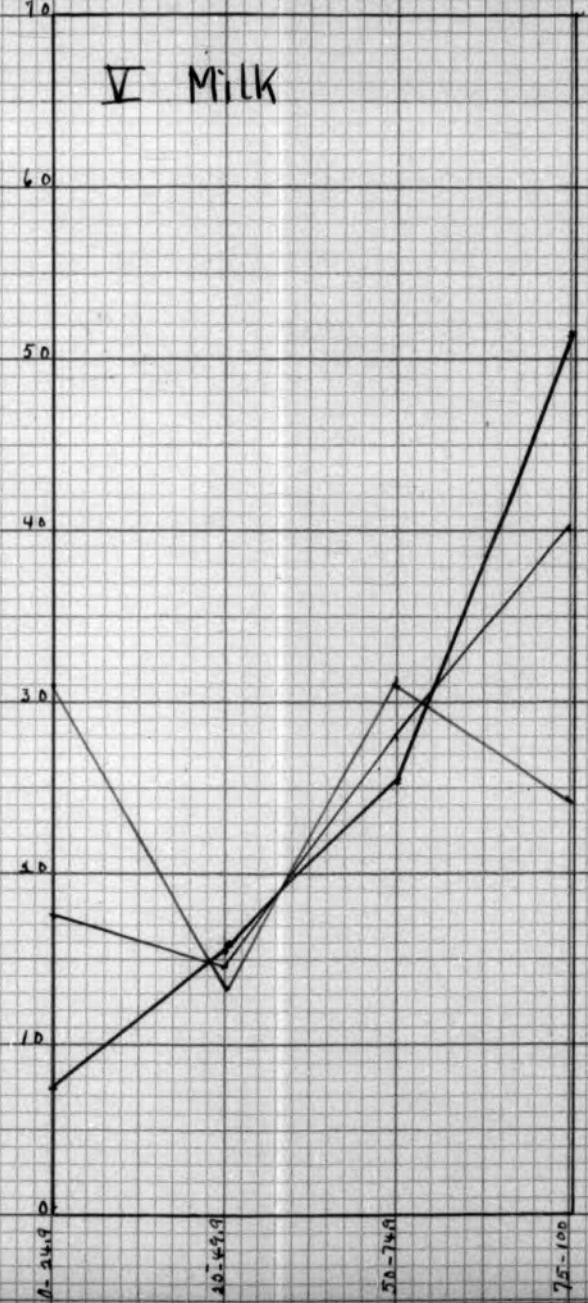
oups of Protective
of Times Available.
raining.

—Total of Both Groups

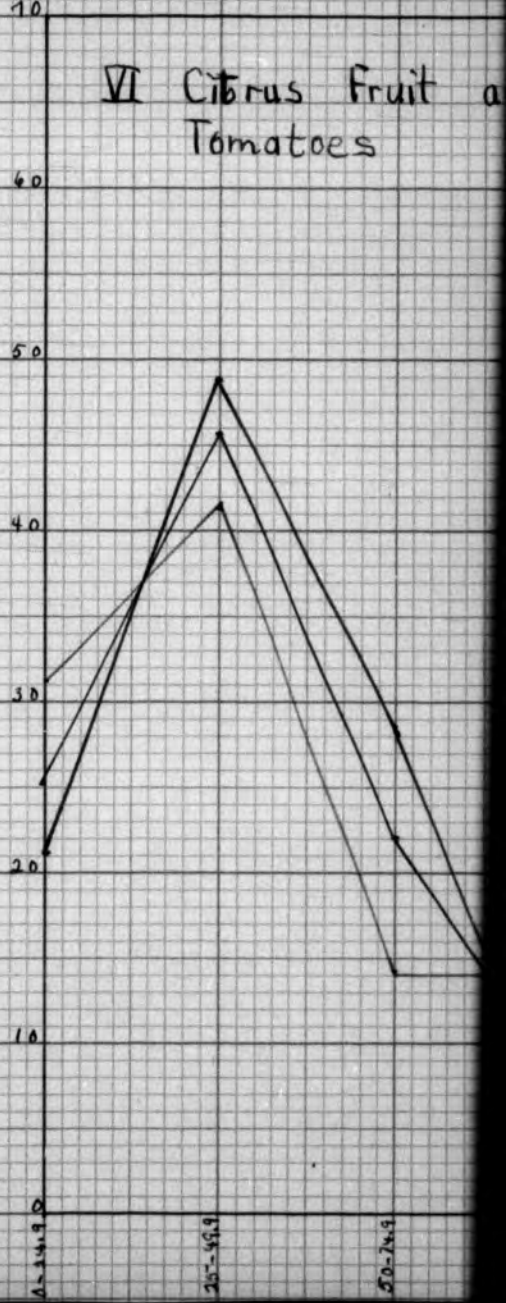
eat and Eggs



V Milk



VI Citrus Fruit a
Tomatoes



group had milk from 8 to 14 times per week while only 5.1 per cent of the former group as compared with 17.2 per cent of the latter group had no milk during the week. Again 15.4 per cent of the former group as compared with 3.5 per cent of the latter group had whole grain cereals from 8 to 14 times and 30.7 per cent of the former group and 37.9 per cent of the latter group had no whole grain during the week.

b. On the other hand there is no significant difference as to the use made by the two groups of the green and yellow vegetables, citrus fruits and tomatoes, other non-starchy fruits and vegetables, and meat, fish, eggs and poultry.

B. Pupil acceptance of food groups.

1. As indicated in tables 5-6 and figures 7-10 there is considerable evidence that the pupils did not take advantage of their opportunity to have the six groups of protective foods.

a. Only 21.3 per cent of the pupils accepted them from 75 to 100 per cent of the times available, 23.7 per cent accepted them from 50 to 74.9 per cent, 27.2 per cent from 25 to 49.9 per cent and 27.7 per cent from only 0 to 24.9 per cent of times available.

b. The six food groups varied widely as to their acceptance.

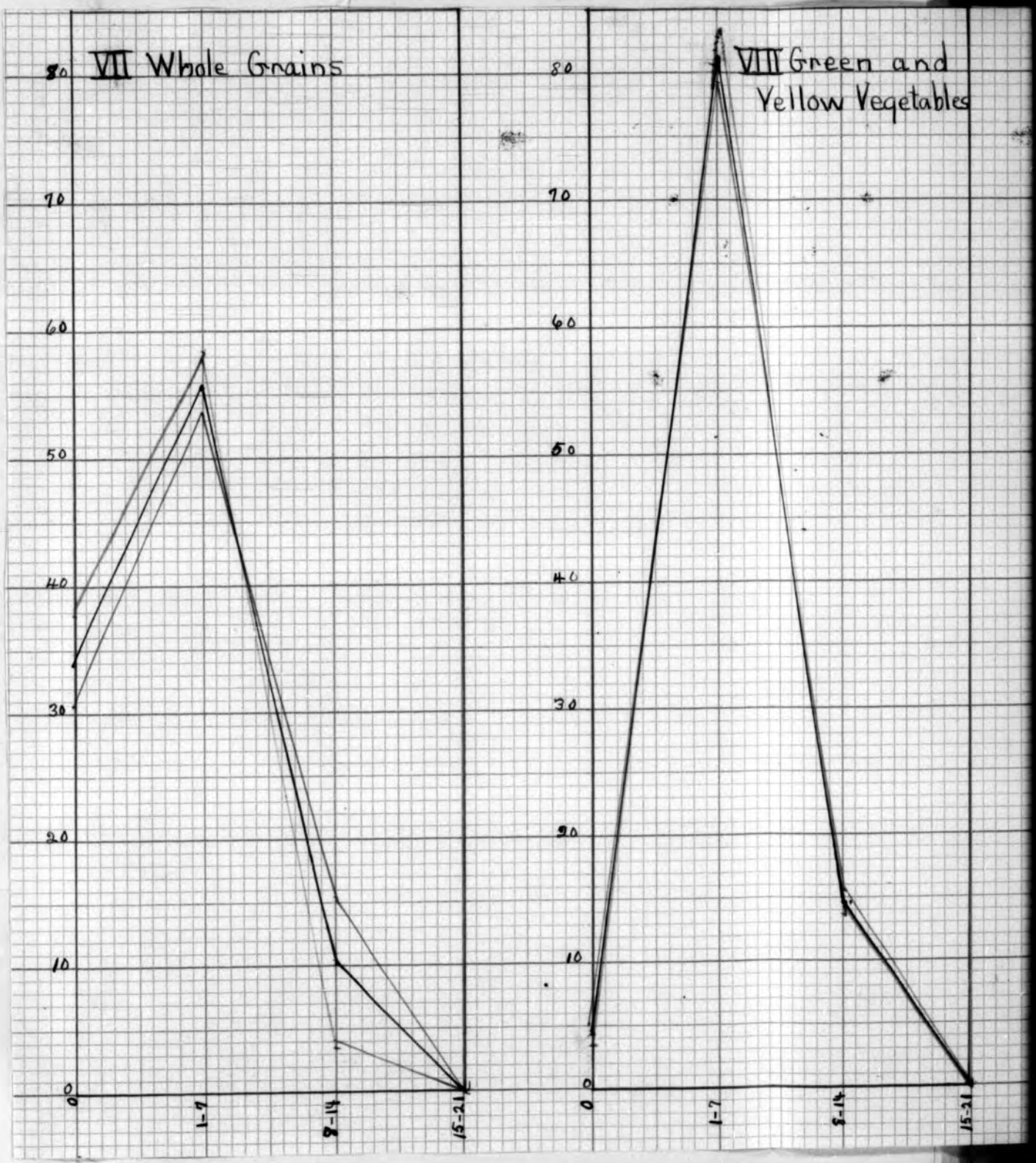
(1) The groups most commonly refused were the green and yellow vegetables, citrus fruits and tomatoes and whole grains. The first were accepted from 75 to 100 per cent of the time by only 4.4 per cent of the pupils, while they were accepted from only 0 to 24.9 per cent of the time by 32.3 per cent. Likewise the citrus

Table 5. Number of pupils who accepted various groups of protective foods from zero to one hundred per cent of times available. Classified according to home economics training.

	75-100 per cent			50-74.9 per cent			25-49.9 per cent			0-24.9 per cent		
	Total	1-2 yrs.	0-½ yr.	Total	1-2 yrs.	0-½ yr.	Total	1-2 yrs.	0-½ yr.	Total	1-2 yrs.	0-½ yr.
milk	27	20	7	19	10	9	10	6	4	12	3	9
green and yellow vegetables	3	1	2	12	9	3	31	19	12	22	10	12
citrus fruits and tomatoes	5	1	4	15	11	4	31	19	12	17	8	9
other fruits and vegetables	24	17	7	16	8	8	13	6	7	15	8	7
whole grains	8	6	2	12	8	4	17	9	8	31	16	15
meat, eggs, fish, poultry	20	12	8	23	16	7	9	4	5	16	7	9

Table 6. Percentage of pupils who accepted various groups of protective foods from zero to one hundred per cent of times available. Classified according to home economics training.

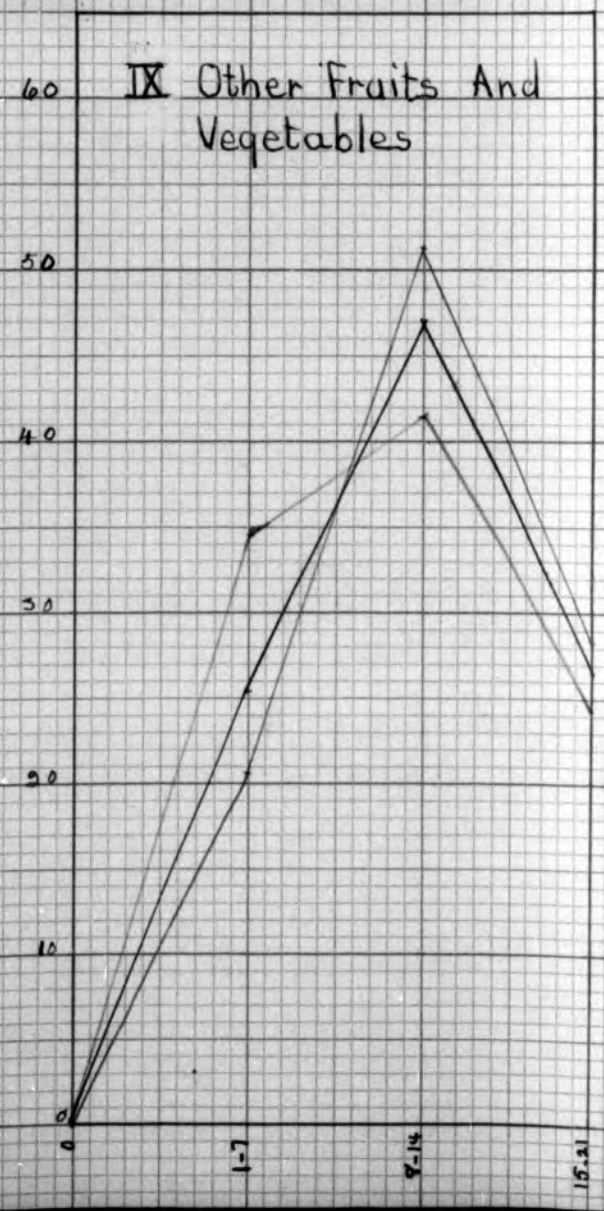
	75-100 per cent			50-74.9 per cent			25-49.9 per cent			0-24.9 per cent		
	Total	1-2 yrs.	0-½ yr.	Total	1-2 yrs.	0-½ yr.	Total	1-2 yrs.	0-½ yr.	Total	1-2 yrs.	0-½ yr.
milk	39.7	51.2	24.1	27.9	25.6	31.0	14.6	15.4	13.7	17.6	7.7	31.0
green and yellow vegetables	4.4	2.6	6.9	17.6	23.1	10.3	45.6	48.7	41.4	32.3	25.6	41.4
citrus fruits and tomatoes	7.3	2.6	13.7	22.0	28.1	13.7	45.6	48.7	41.4	25.0	20.5	31.0
other fruits and vegetables	35.3	43.6	24.1	23.5	20.5	27.4	19.1	15.4	24.1	22.0	20.5	24.1
whole grains	11.6	15.4	6.9	17.6	20.5	13.7	25.0	23.1	27.4	45.6	41.0	51.7
meat, eggs, fish, poultry	29.4	30.7	27.4	33.8	41.0	24.1	13.2	10.2	17.2	23.5	17.9	31.0

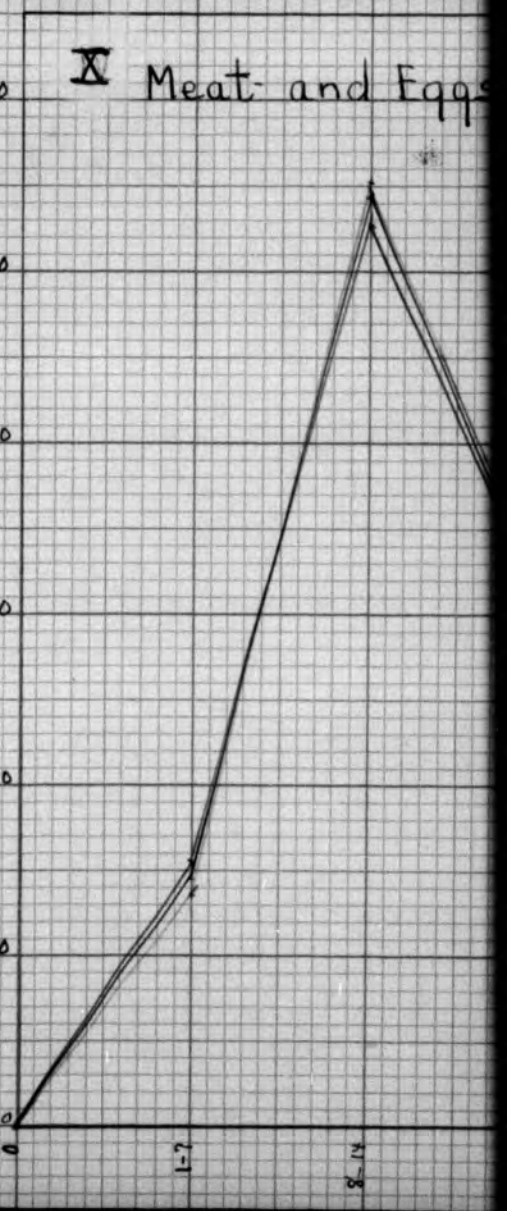

VII Whole Grains
80
70
60
50
40
30
20
10
0
1-7
8-14
15-21
VIII Green and Yellow Vegetables
80
70
60
50
40
30
20
10
0
1-7
8-14
15-21

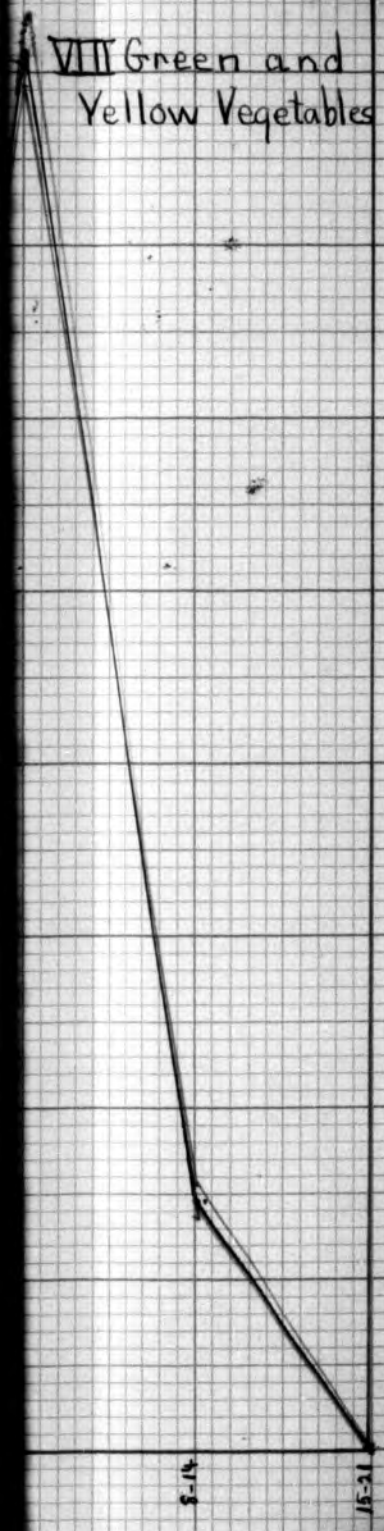
VIII Green and Yellow Vegetables

Precentage of Pupils Who Used Various Groaps of Prot
Foods a Given Number of Times During the Week. Clas
According to Home Economics Training.

—No Home Economics —Home Economics —Total of Both



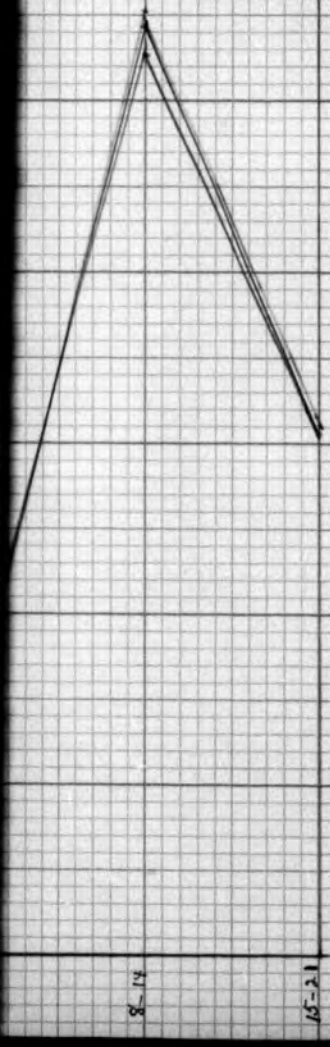




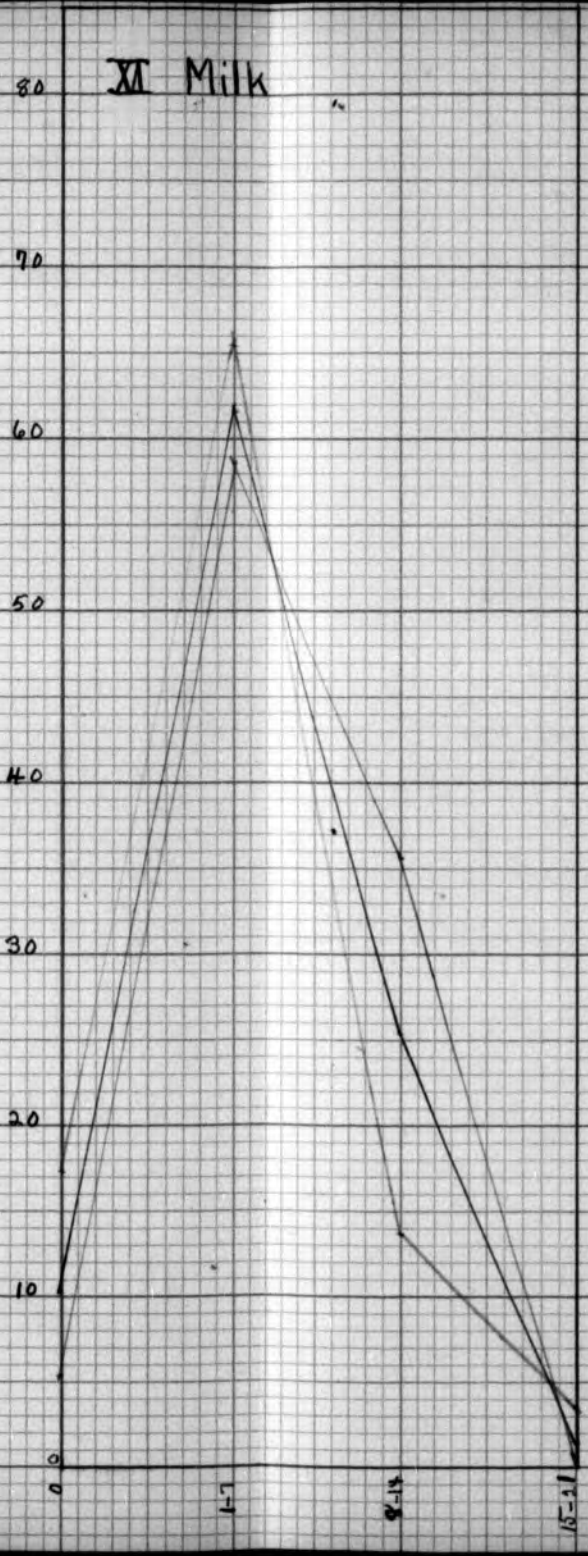
ups of Protective
Week. Classified

tal of Both Groups

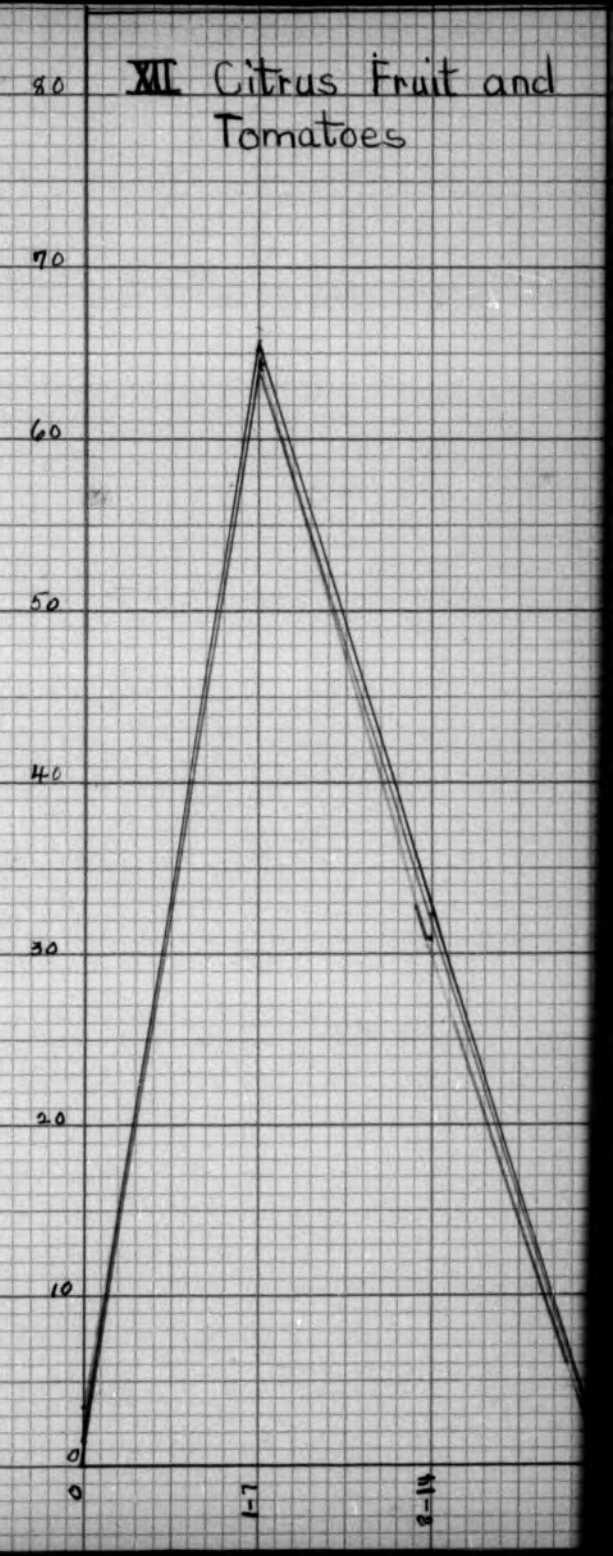
t and Eggs



XI Milk



XII Citrus Fruit and Tomatoes



fruits and tomatoes were accepted from 75 to 100 per cent of times by 7.3 and from 0 to 24.9 per cent by 25 per cent, and the whole grains from 75 to 100 per cent of times by 11.6 per cent and from 0 to 24.9 per cent of times by 45.6 per cent of the pupils. Especially significant are the facts that 23.5 per cent never accepted citrus fruits and tomatoes, and 33.7 per cent never accepted the whole grains.

(2) The food most commonly accepted was milk, which was accepted by 39.7 per cent of the pupils from 75 to 100 per cent of the time as compared with only 17.6 per cent of pupils who accepted it only 0 to 24.9 per cent of the times available. Again it is interesting that 30.8 per cent of pupils accepted it every time it was available.

(3) The other two groups follow milk with approximately equal acceptance.

c. There is considerable evidence that the pupils who had one to two years of training in home economics did a better job of taking advantage of their opportunities to have protective foods than did those with less or no training.

(1). This is shown by the fact that from 2.6 to 51.2 per cent or an average of 24.3 per cent of the group who had had training in home economics accepted these foods from 75 to 100 per cent of times they were

available as compared with the group who had had no training which accepted them from 6.9 to 27.4 per cent or an average of 17.2 per cent; and that only from 7.7 to 41.0 per cent or an average of 22.2 per cent of the former group accepted tham as frequently as 0 to 24.5 per cent as compared with 24.1 to 51.7 per cent or an average of 35.0 per cent of the latter group.

(2). The differences between the two groups is especially noticeable in their acceptance of milk and whole grains. Milk was accepted from 75 to 100 per cent of times offered by 51.2 per cent of the former group as compared to 24.1 per cent of the latter group, while only 17.6 per cent of the former group accepted from 0 to 24.5 per cent of times offered as compared to 31.0 per cent of the latter group.

Likewise, whole grains were accepted from 75 to 100 per cent of times offered by 15.4 per cent of the former group as compared to 6.9 per cent of the latter group and from 0 to 24.5 per cent by 41.0 per cent of the former group as compared to 51.7 per cent of the latter group.

(3). There appears to be no significant difference in the acceptance of the other protective food groups by the pupils with one to two years of home economics as

compared with those with less or no training.

C. Foods eaten between meals

1. The between meal habit appears to be common with this group. A total of 1124 foods or an average of 2.4 per pupil per day were eaten. The protective foods, ice cream, milk and fresh fruits, were used by 33.8, 41.1, and 89.7 per cent of the group as contrasted with 33.8, 70.5 and 73.5 per cent who ate the three groups of sweets. That the protective foods did not take an important part in the diet is shown by the weekly per pupil consumption; protective foods 5.9 times per week, sweets 6.6 times, soft drinks 1.2 times per week.

Table 7. The number and percentage of individuals who ate various foods between meals.

	Eaten by individuals		Times Per Week	Average Per Week
	Number	Per cent		
fresh fruit	61	89.7	294	4.3
candy	52	73.5	191	2.8
cakes and cookies	50	70.5	184	2.7
bread	42	61.9	114	1.7
soft drinks	32	47.0	82	1.2
nuts	29	42.6	65	1.0
milk	28	41.1	76	1.1
jelly, preserves	23	33.8	72	1.1
ice cream	23	33.8	31	0.5
meats and cheese	3	4.4	14	0.2
popcorn	1	1.5	1	
			1124	16.6

Part II. Food production and consumption practices of 62 homemakers.

The data concerning food production and consumption practices were secured through the use of questionnaires from a group of 62 homemakers, who were former students in the East Bend, North Carolina School. Data concerning personnel of this group-age, cash income, education, residence, training in home economics and agriculture, and number, age, and sex of children will be found in tables 8-13.

Table 8. Amount of education

Completed	Homemaker		Husband	
	Number	Per cent	Number	Per cent
grammar grade only	2	3.2	2	3.2
1-2 years high school	6	9.7	12	19.4
3-4 years high school	40	64.5	36	58.0
1-2 years college	8	12.9	8	12.9
college graduate	6	9.7	4	6.4
	62	100.0	62	99.9

Table 9. Number and per cent of men and women who had training in agriculture and home economics

	Men in agriculture		Women in home economics	
	Number	Per cent	Number	Per cent
none	44	71.0	31	50.0
1 year in high school	4	6.4	12	19.4
2 years in high school	13	21.0	19	30.6
more than 2 years	1	1.6	0	0.0
in extension classes	0	0.0	0	0.0
in adult classes	0	0.0	0	0.0

The questionnaires were distributed by the writer directly to the individual homemaker. The purpose of the study was explained and instructions for filling in the questionnaires were given. Food consumption records for one week were secured b y the inventory method. In addition to food consumption records, records were secured concerning the number and variety of fruits and vegetables and the quantity of poultry, meat and eggs produced; also the quantity of vegetables, fruits and meat preserved.

The data were analyzed to show:

1. The number and per cent of each group of families who met all standards for each a moderate diet and minimum adequate diet.

2. The number and per cent of families who were below each of the moderate and minimum adequate diet in various groups of protective foods.

3. The number and percentage of families who produced various food groups, classified according to home economics training.

4. The number and per cent of families who preserved various foods for the winter supply, classified according to home economic training.

Table 10. Residence and status of home ownership.

Residence	Number	Per cent	Ownership	Number	Per cent
country	33	53.2	own	41	66.1
village	23	37.1	rent	20	32.3
town	1	1.6	share cropper	1	1.6
city	5	8.0			
	62	99.9		62	100.0

Table 11. Age of homemaker and husband.

	Homemaker		Husband	
	Number	Per cent	Number	Per cent
under 25	43	69.3	25	40.3
25-34	18	29.0	33	53.2
35-45	1	1.6	4	6.4
	62	99.9	62	99.9

Table 12. Number and percent of families having given cash income

	Number	Per cent
Below $500	9	14.5
$500-999	28	45.1
$1000-1499	13	21.0
$1500-1999	6	9.7
$2000-2499	5	8.1
$2500-2999	1	1.6
	62	100.0

Table 13. Number and ages of children

	Number
families having no children	46
families having children	16
number of children	20
under 3 years	13
3-6 years	5
7-10 years	2

In determining the adequacy of the diets, the writer used the standards set up by the Bureau of Home Economics[2] as a basis for determining the quantity of each of the groups of protective foods needed by each family. The writer's judgment was used in classifying the degree of activity on the basis of occupation.

The adequacy of the vegetable and fruit production was based on

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2. Stiebeling, Hazel K. and Carpenter, Rowena S., "Diets to Fit the Family Income", United States Department of Agriculture, Farmer's Bulletin 1757 (1936).

standards arbitrarily set up by the writer. The vegetable garden was considered adequate if a minimum of five varieties of green and yellow and five other vegetables were produced. The orchard was considered adequate if five kinds of fruit were produced. Attention is called to the fact that information concerning yield of fruits and vegetables was not secured. This explains the apparent contradiction shown in tables. The egg production was considered adequate if sufficient eggs were produced to meet family needs as set up by the Bureau of Home Economics.

Findings

1. None of the 62 families met the standards for even the minum adequate allowance for all the groups of protective foods. Table 14.
2. The standards for a moderate adequate diet were met for 6 groups of the protective foods by 2 families or 6.5 per cent, for five groups by six families or 9.7 per cent, for four groups by 17 families or 27.4 per cent, for three groups by 18 families or 29.0 per cent, for two groups by 11 families or 17.7 per cent, and for one group by seven families or 11.3 per cent. One family or 1.6 per cent failed to meet the minimum standards for any group.
3. Seventeen families or 27.4 per cent failed to meet the standards for even the adequate minimum allowance for one food group; 20 families or 32.3 per cent for two food groups, 15 families or 24.2 per cent for three food groups, 11 families or 17.7 per cent for four groups and 1 family or 1.6 per cent for five food groups.
4. Of the food groups the milk supply was the most adequate. Fifty families or 80.7 per cent met the standards for a moderate diet.

Twelve or 19.4 per cent failed to meet even minimum adequate diet standards.

5. None of the families met even the minimum standard for whole grain cereals. Only four had within 60 per cent of the minimum.
6. The supply of green and yellow vegetables was also very inadequate. Only 23 families or 37.1 per cent met moderate adequate diet standards; five or 8.1 per cent, the minimum standards; while 34 or 54.8 per cent failed to meet the minimum.
7. The supply of eggs and meat, fish and poultry was better than that of the vegetables and fruits. The egg supply was adequate in 40 families or 64.5 per cent; five families or 8.1 per cent met the minimum adequate standards and 17 families or 27.4 per cent were below the minimum level. The meat supply met the standards of moderate diet in 28 or 45.2 per cent of the families, of a minimum diet in 23 or 37.1 per cent and failed to meet a minimum adequate standards in only 10 or 15.5 per cent of the families.
8. About one-third of the group had a moderate supply of citrus fruit and tomatoes, another one-third met the standards of a minimum adequate diet. The other one-third failed to even meet the minimum standards.
9. That the total fruit and vegetable supply was very inadequate is further shown by the fact that only ten families met the standards for a moderate supply of other fruits and vegetables; 45 families or 72.6 per cent, the minimum adequate diet requirements; while seven families failed to meet even the minimum adequate standards.

10. The families in which the homemaker had from one to two years of training in home economics had a vastly better diet than the families in which the homemaker had not had this training, as shown in table 15.

11. The superiority of the diets in the homes of the trained homemakers is especially evident in three food groups. The standards of moderate adequate diet were met as to milk by 90.3 per cent versus 71 per cent; green and yellow vegetables by 51.6 per cent versus 22.6 per cent; eggs by 70.9 per cent versus 64.5 per cent; tomatoes and citrus fruits 51.6 per cent versus 12.9 per cent. There is no significant difference between the two groups as to the supply of meat, poultry and fish, other fruits and vegetables and whole grains.

12. Of the 49 families that produced some vegetables only 29 had a winter as well as a summer garden.

13. Adequate* vegetables were produced by 46.8 per cent, fruits by 33.9 per cent and eggs by 35.3 per cent of the families.

14. The homes in which the homemaker had training in home economics produced a more nearly adequate food supply than homes where such training was lacking.

15. Although 77.4 per cent of the families preserved some vegetables and fruits, only 54.8 per cent preserved an adequate supply. Adequate vegetables and fruits were preserved by 61.3 per cent of the families where the homemaker had training in home economics, and 48.5 per cent where she had no training. (Table 16)

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*See explanation on pages 30-31.

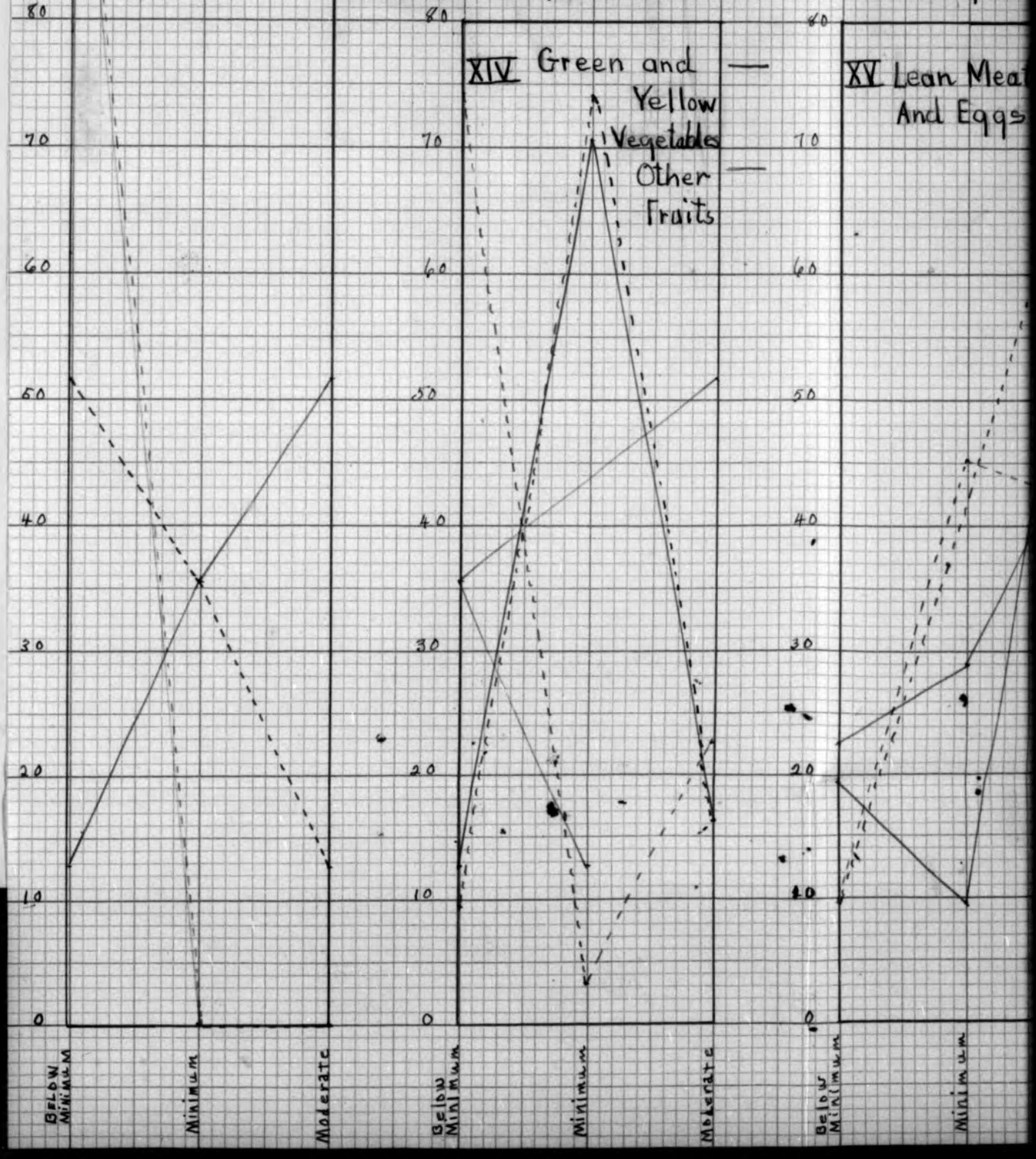
Table 14. Number and percentage of families who met standards for moderate diet and those who failed to meet minimum standards. Classified as to amount of training in home economics.

	Number			Per Cent		
	H.E.	No H.E.	Total	H.E.	No H.E.	Total
net standards for moderate diet						
all (7) food groups	0	0	0	0.0	0.0	0.0
in 6 food groups	2	0	2	6.4	0.0	3.2
in 5 food groups	5	1	6	16.1	3.2	9.7
in 4 food groups	12	5	17	38.7	16.1	27.4
in 3 food groups	10	8	18	32.3	25.8	29.0
in 2 food groups	2	9	11	6.4	29.0	17.7
in 1 food group	0	7	7	0.0	22.6	11.3
in 0 food group	0	1	1	0.0	3.2	1.6
Failed to meet standards for even minimum adequate diet						
all (7) food groups	0	0	0	0.0	0.0	0.0
in 6 food groups	0	0	0	0.0	0.0	0.0
in 5 food groups	0	1	1	0.0	3.2	1.6
in 4 food groups	1	10	11	3.2	32.3	17.7
in 3 food groups	4	11	15	12.9	35.5	24.2
in 2 food groups	13	5	20	41.9	16.1	32.3
in 1 food group	13	4	17	41.9	12.9	27.4

XIII Whole Grains and Citrus Fruits

Number and percentage of Families Meeting t
For Moderate, Minimum Adequate or Belo
Diets in Various Protective Food Groups. C
As to the Amount of Training in Home

—— Whole Grains, Home Economics —— Citrus Fruits, Hom
---- Whole Grains, No Home Economics ---- Citrus Fruits, No



ber and percentage of Families Meeting the Standards
Moderate, Minimum Adequate or Below Minimum
s in Various Protective Food Groups. Classified
o the Amount of Training in Home Economics

Grains, Home Economics —— Citrus Fruits, Home Economics
Grains, No Home Economics---- Citrus Fruits, No Home Economics

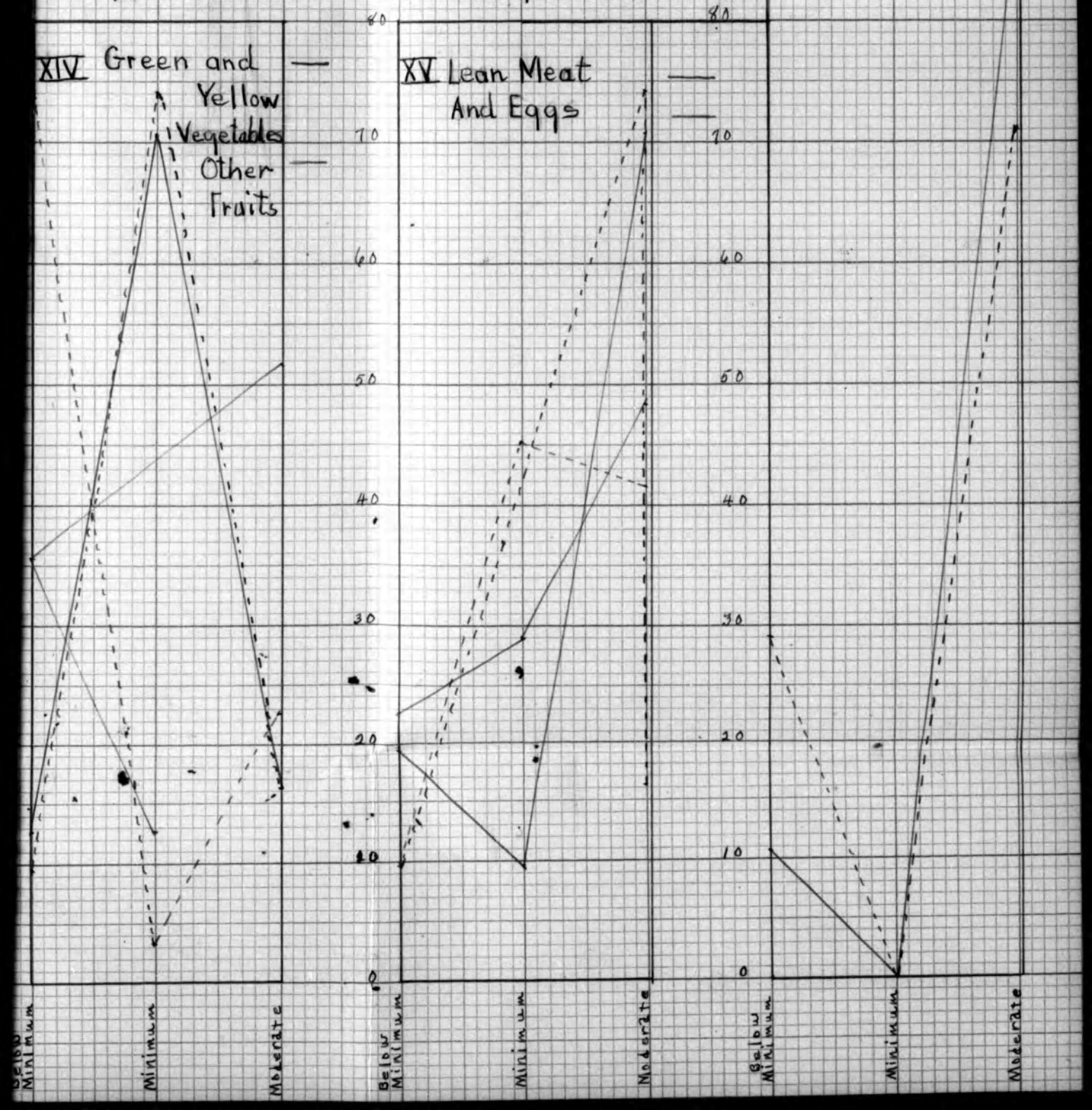


Table 15. Number and percentage of families meeting the standards for moderate, minimum adequate or below minimum diets, in various protective food groups. Classified as to the amount of training in home economics

	Home Economics Training						No Home Economics Training					
	Moderate		Minimum		Below Min.		Moderate		Minimum		Below Min.	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
milk	28	90.3	0	0	3	10.8	22	71.0	0	0.0	9	29.0
green and yellow vegetables	16	51.6	4	12.9	11	35.5	7	22.6	1	3.2	23	74.2
citrus fruits and tomatoes	16	51.6	11	35.5	4	12.9	4	12.9	11	35.5	16	51.6
other fruits and vegetables	5	16.1	22	70.9	4	12.9	5	16.1	23	74.2	3	9.7
lean meat, fish, poultry	15	48.4	9	29.0	7	22.6	13	41.9	14	45.4	3	9.7
eggs	22	70.9	3	9.7	6	19.3	5	16.1	23	74.2	3	9.7
whole grain	0	0.0	0	0.0	31	100.0	0	0.0	0	0.0	31	100.0

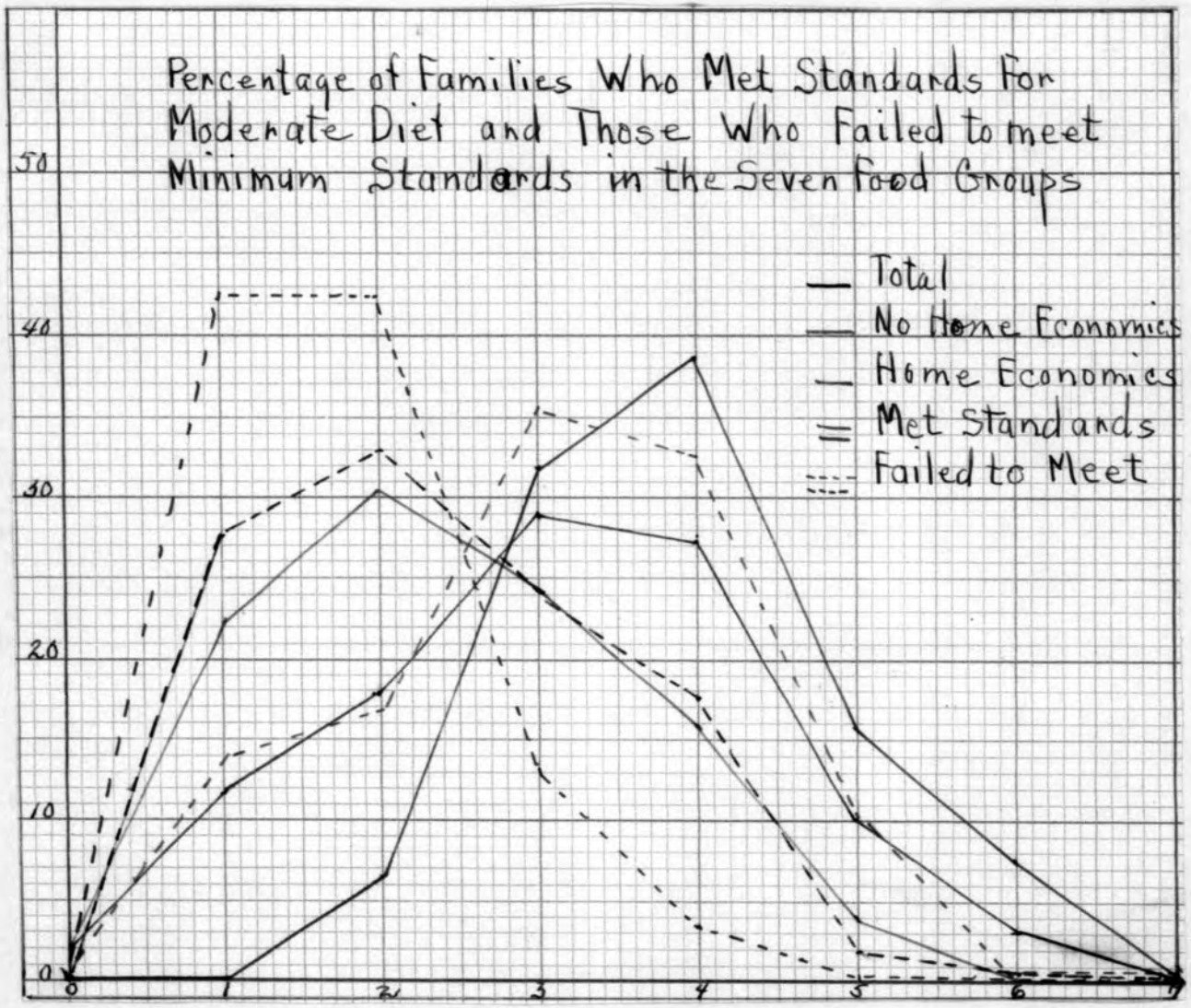

Percentage of Families Who Met Standards For Moderate Diet and Those Who Failed to meet Minimum Standards in the Seven Food Groups
50
40
30
20
10
0
0
1
2
3
4
5
6
7
Total
No Home Economics
Home Economics
Met Standards
Failed to Meet

Table 16. Number and percentage of homes producing and preserving vegetables, fruits and eggs. Classified as to amount of home economics training.

	Number		Per Cent		Total	
	H.E.	No H.E.	H.E.	No H.E.	No.	Per Cent
had summer garden only	11	9	35.5	29.0	20	32.3
had summer and winter garden	19	10	61.3	32.2	29	46.8
had adequate gardens*	19	10	61.3	32.3	29	46.8
had adequate fruits*	15	6	48.4	19.3	21	33.9
had adequate eggs	15	7	48.4	22.3	22	35.5
preserved vegetables	28	20	92.9	64.5	48	77.4
preserved fruits	26	21	83.9	67.7	47	75.8
preserved adequate supply of vegetables and fruits	19	15	61.3	48.5	34	54.8

* Refers only to number of varieties raised. It does not refer to yield.

Summary

None of the 62 families met all the standards for either a moderate or a minimum adequate diet. With the exception of whole grains, two families met the standards for a moderate adequate diet, 33.9 per cent met the standards for a minimum adequate diet, and 62.8 per cent failed to meet the standards for a minimum adequate diet.

Of the seven protective food groups milk and eggs seemed to be more nearly adequate. Only 19.4 per cent of the families failed to meet the standards for a minimum adequate diet in milk and 27.4 per cent in eggs.

The weakest point in the diet was in the use of whole grains, with green and yellow vegetables and citrus fruit and tomatoes coming next.

The diets of the families where the homemaker has had training in home economics seemed to be more nearly adequate than those where she has had no training. Of the former group 45.1 per cent of the diets were below minimum, while 80.7 per cent of the diets of the latter group were below minimum.

The greatest difference in the two groups in the use of the various protective foods was in their use of green and yellow vegetables and of citrus fruit and tomatoes. Of the former group 35.5 per cent were below the minimum in green and yellow vegetables, while 74.2 per cent of the latter group were below the minimum, and 12.9 per cent of the former group were below the minimum in citrus fruits and tomatoes, while 51.6 per cent of the latter group were below the minimum.

Less than one-half of the families had an adequate garden, about

one-third adequate fruits, and a little over one-third adequate poultry. A little over one-half preserved an adequate supply of vegetables and fruits.

The families where the homemaker has had training in home economics seemed to be superior in food production and preservation to the ones with no training. Almost twice as many of the former group as of the latter group had adequate gardens and one-third more of the former than of the latter group preserved an adequate supply of vegetables and fruits.

Chapter IV

Summary, Conclusions, Recommendations

Summary

The study consisted of food consumption practices of 68 school girls and food production and consumption practices of 62 families in North Carolina.

Food consumption records were secured for one week. The Data were analyzed to show: the adequacy of the diets of both groups, the acceptance of various protective foods when pupils were free to choose, and production and preservation practices of the families. Comparisons were made of the practices of those who had training in home economics and those who had no training.

Although neither the pupils nor the homemakers seemed to have adequate diets in every respect, in both groups the diet was superior where there had been training in home economics.

The lack of an adequate supply of the protective foods was not entirely due to poor family diets, because advantage had not been taken of the opportunities offered at school and home to have these foods.

The weakest points in the diets of both groups were in the use of whole grains, green and yellow vegetables and citrus fruit and tomatoes. Milk, lean meat and eggs, and other fruits and vegetables seemed to be more nearly adequate.

Food production and preservation were adequate in from one-third to one-half of the families.

In every case mentioned above food practices of the group who had training in home economics were superior to that of the other group.

Conclusion

Within the limits of this study it seems safe to conclude:

1. That the diets of the 62 families and of the 68 high school girls are inadequate.

2. That there is some carry over of the home economics instruction into the daily practice in the homes and of the girls.

Recommendation

On the basis of the findings, the writer should in the future, as a teacher of home economics, put increased emphasis upon those pupils' experiences that will:

1. Convince pupils of the importance of doing all possible to have an adequate diet, whether it be by the "acceptance" of essential foods, or by the production of foods as necessary to supplement the family income.

2. Help pupils to understand the importance of this nutritional problem to the end that they will, as homemakers, continue their education under the leadership of the public schools, the Extension Service, or other educational and social agencies.

APPENDIX

FORM--B

Name-_____Address_____

I. Family Personal

A. In the following charts check (v) to indicate correct answer.

1. For each adult living in your family:
a. Check two places: (1) Age, (2) Education
b. Give occupation of all adults who are gainfully employed.
2. For each child in your family:
a. Check two places: (1) Age, (2) Sex

Adult	Age				Education			Occupation
	Under 25	25-34	35-45	Over 45	H. S. 1-2 yrs	3-4 yrs	College 1-2 Grad	
Male								
1. Husband								
2. Others								
a.								
b.								
Female								
1. Wife								
2. Others								
a.								
b.								

Children	Age			Sex	
	Under 3	3-6	7-10	Boy	Girl
1.					
2.					
3.					
4.					
5.					
6.					

II. Check the approximate yearly Cash income of your family.

A. Under $500-----
B. $500 to $999_____
C. $1000 to $1499_____
D. $1500 to $1999_____
E. $2000 to $2499_____
F. $2500 to $2999_____
G. $3000 to $3499_____
H. $3500 to $3999_____

III. How many years have you been out of school?_____

Check (v) to indicate the correct answer in question IV through VII
1. Check one or more blanks as nesessary.

IV. Do you live in open country?_____, Village?_____, Town?_____, City?___

V. Do you own your home?_____, Rent?,_____ or Share Cropper?_____

VI. Have you had home economics training?
A. In school: 1 year_____, 2 years_____, more than 2 years_____.

B. Out of school: Extension classes_____, Adult classes_____.

VII. Has husband had agricultural training?
A. In school: 1 year_____, 2 years,_____ more than 2 years_____.
B. Out of school: Extension classes_____, Adult classes_____.

VIII. Do you have a poultry flock?_____. How large a flock of young chickens did you raise last year?_____. How large a flock did you keep for egg production?_____. How many dozen eggs did you produce last year?___

IX. Approximately how much of each of the fruits listed below did you produce last year?

Fruit	Quantity	Fruit	Quantity
1. Apples	_____bushels	6. Pears	_____bushels
2. Apricots	_____pecks	7. Quince	_____pecks
3. Cherries	_____ quarts	8. Strawberries	_____quarts
4. Plums	_____pecks	9. Grapes	_____quarts
5. Peaches	_____bushels	10. Blackberries	_____gallons
		11. Raspberries	quarts

XI. Check vegetables grown in your garden.
1. In first column indicate those grown in summer 1940.
2. In second column indicate those grown in Fall and Winter 1940-1941.
3. In column three indicate for 1940-41.

	Summer Season	Fall and Winter	Canned or dried for Winter supply
A. Green vegetables			
1. Mustard greens			
2. Turnip greens			
3. Spinach			
4. Collards			
5. Beans(string)			
6. Peas			
7. Kale			
B. Yellow vegetables			
1. Carrots			
2. Yellow corn			
3. Sweet Potatoes			
4. Rutabaga			
5. Suash			
C. Strach vegeatbles			
1. Potatoes			
2. White corn			
3. Navy beans			
4. Lima beans			
5. Peas(dried)			

D. Other vegetables

1. Celery				
2. Cabbage				
3. Lettuce				
4. Onions				
5. Tomatoes				
6. White Squash				
7/ Turnips				
8. Egg Plant				
9. Okra				
10. Beets				
11. Asparagus				
12. Parsnips				
13. Radishes				
14. Cucumbers				
15. Sweet peppers				

XII. How much food did you preserve last year by canning, pickling, preserving, jelly, dried, or cured?

	Vegetables	Fruits	Meats	Poultry
Canned (qts)				
Pickled (qts)				
Preserved or jelly ($\frac{1}{2}$pt)				
Dried (lbs)				
Cured (lbs.)				

XIII. Health Conditions of Family.

A. Check indispositions which have troubled your family during past six months.

1. Check (v) if troubled ocassional.
2. Check (vv) if troubled very much.
3. Put a zero (0) if never troubled.

	Children				Adults		
	under 3	3-6	7-10	Over 10	Wife	Husband	Others
1. Colds							
2. Constipation							
3. Headache							
4. Sore Throat							
5. Disgestive disturbances							
6. Over weight							
7. Under weight							
8. Other Illness							
List:							
a.							
b.							
c.							
d.							
e.							

XIV. Record of food consumed by your family during the week beginning _____.

A. Fill in columns 1, 2, 3, 4, and 5 as indicated below:

In column 1--Change the unit of measure if that is not the one you use.

In column 2--Record amount of each food on hand at beginning of week. In those cases in which you have a large supply on hand, it will be more convenient to measure out (and record) the quantity you think you will use.

In column 3--Record amount bought during week.

In column 4--Record amount produced at home during week.

In column 5--Record amount on hand at end of week.

Lease column 6 blank.

Food	Unit of Measurement (1)	Amount on hand at beginning week (2)	Amount bought during week (3)	Amount home produced during week (4)	Amount on hand at the end of week (5)	Do not fill in (6)
A. Milk and milk products						
1. Whole milk	qts.					
2. Skim milk	quarts					
3. Buttermilk	quarts					
4. Cream	½ pt.					
5. Canned Milk	small(5 oz. can					
6. Cheese	pound					
B. Fats						
1. Oleomargarine	pound					
2. Cooking fat	pound					
3. Salad oil	pint					
C. Eggs	dozen					
D. Fruits						
1. Fresh						
a. apples	pound					
b. oranges	doz.(indicate size)					
c. Grapefruit	½ doz.					
d. Bananas	pounds					

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Food	Unit of Measurement (1)	Amount on hand at beginning week (2)	Amount bought during week (3)	Amount home produced during week (4)	Amt. on hand at end of week (5)	Do not fill in (6)
2. Canned	Qts.					
3. Dried	pound					
E. Cereals and flour						
1. whole grain *	pound					
2. Refined **	pound					
F. Bakery products						
(not home made	pound					
1. White bread						
2. Whole wheat						
breat	pound					
3. Creackers	pound					
4. Cakes	pound					
5. Cookies	pound					
6.						
7.						
G. Meats						
1. Beef	pound					
2. Pork	pound					
3. Ham	pound					
4. Lamb or mutton	pound					
5. Liver	pound					
6. Bacon	pound					
7. Fat back	pound					
8. Fish	pound					
9. Salmon	pound can					
10. Poultry	pound					
11.						
12.						

* Whole grain cereals--Oatmeal, whole wheat.
**Refined cereals--Cream of wheat, grits, tapioca, flour, corn meal, cornflakes.

SF

Food	Unit of Measurement (1)	Amount on hand at beginning week (2)	Amount bought during week (3)	Amount home produced during week (4)	Amount on hand at end of week (5)	Do not fill in (6)
H. Vegetables						
1. Fresh						
a. Green						
1.Collards	pound					
2.Mustard	pound					
3.Turnip greens	pound					
4.Spinach	pound					
5.String beans	pound					
6.Peas	pound					
7.Kale	pound					
b. Yellow						
1.Carrots	bunch					
2.Sweet potatoes	pound					
3.Rutabaga	pound					
4.Yellow corn	pound					
5.Yellow Squash	pound					
c. Starchy						
1.Potatoes	pound					
2.Corn	pound					
3.Navy beans	pound					
4.Lima beans	pound					
5.Peas(dried)	pound					
d. Others						
1.Lettuce	head					
2.Cabbage	pound					
3.Celery	stalk					

Food	Unit of Measurement (1)	Amt. on hand at beginning week (2)	Amt. bought during week (3)	Amt. home produced during week (4)	Amt. on hand at end of week (5)	Do not fill in (6)
4. Onions	pound					
5. Tomatoes	"					
6. White squash	"					
7. Turnips	"					
8. Egg plant	"					
9. Okra	"					
10. Beets	"					
11. Asparagus	"					
12. Parsnips	"					
13. Radishes	"					
14. Cucumber	"					
15. Sweet peppers	"					
2. Canned	quarts					
3. Dried	pounds					
I. Sweets						
1. Preserves, jam or jelly	½ pint					
2. Sugar	pound					
3. Syrup	½ pint					
4. Molasses	½ pint					
5. Honey	½ pint					
6.						
7.						
J. Miscellaneous						
1. Cocoa	pound					
2. Chocolate	pound					
3. Tea	pound					
4. Coffee	pound					
5. Pickle	pound					
6. Nuts	pound shelled					
7.						
8.						

Name_____ Address_____

Age_____Grade in School_____

Check ( ) to indicate the correct answers in questions I, II, and III below.

Check ( ) one or more as necessary.

I. How much home economics training have your had? None____, a year____ 1 year____, 1½ years____, 2 years_____.

II. Have you had 4 H club work in canning?_____, Meal study?_____, Cooking Gardening?_____, Dairy products?_____. Have you been a girl scout? _____, Campfire girl?_____.

III. Have you studied nutrition (food needs and food values) in science class? _____, in hygiene class?_____, In any other class?_____.

IV. Record of your food consumption during week beginning_____.

A. Directions:

1. In the following charts indicate the number of servings of each food eaten by checks ( ) one, two, three or more as necessary.
2. Add at the end of each chart any foods that were omitted in the list.

Chart No. 1 -- Record of Noon Lunches.

1. Check for only 5 days (Monday through Friday).
2. Check for only those days when lunch was eaten at school.
3. Check all foods eaten, whether brought from home, purchased from store or from school lunch.
4. Indicate how your lunch was selected each day by using, all, part, none.

Food	Mon	Tue	Wed	Thur	Fri	Do Not Fill In
A. Milk porducts:						
1. Whole milk						
2. Skim milk						
3. Butter milk						
4. Cheese						
5. Butter						
6. Cream soup						
B. Meat and eggs:						
1. Lean meat						
2. Fat meat						
3. Poultry						
4. Fish (fresh or canned)						
5. Eggs						

Food	Mon	Tue	Wed	Thur	Fri	Do Not Fill In
C. Fruits*						
1. Citrus (fresh or canned)						
2. Tomatoes (fresh or canned)						
3. Other fresh fruits (raw, cooked, salad)						
4. Canned fruit						
5. Dried fruit						
6. Jelly, preserves, jams						
D. Vegetables						
1. Raw (alone or salad)						
2. Cooked (green)						
3. Cooked (yellow)						
4. Strachy						
5. Other cooked Vegetables						
6. VegetableSoup						
7. Vegetale (and meat) stew						
E. Bread and hot bread						
1.White (bread,rolls, biscuits, muffins)						
2. Whole Wheat						
3. Corn						
4. Sweet breads						
F. Desserts						
1. Pie, cobbler, dumplings						
2. Cake						
3. Cookies, doughnuts						
4. Ice cream						
5. Candy						
6. Custards						
7. Puddings						
G. Beverages						
1. Water						
2. Cocoa or chocolate						
3. Soft drinks						
4. Coffee						
5. Tea						
H. Miscellaneous						
1. Nuts (or peanut butter)						
2. Pickle						
3.						
4.						

*Do not record fruits used in desserts in this space. Put them under "desserts"

Food	Mon	Tue	Wed	Thur	Fri	Do Not Fill In
5.						
6.						
7.						
8.						
9.						
10.						
A. Did you bring all, part, none of your lunch from home?						
B. Did you buy all, part, none, at store?						
C. Did you buy all, part, none at school?						

Chart No. 2 --Foods Eaten Between Meals.

1. Check for each day of the week. Indicate the number of times eaten.

Food	Mon	Tue	Wed	Thur	Fri	Do Not Fill In.
A. Food						
1. Cake, cookies, doughnuts						
2. Candy						
3. Fresh fruit						
4. Ice cream						
5. Milk						
6. Soft drinks						
7. Nuts						
8. Bread						
9. Jelly, jam, preserves						
10.						
11.						
12.						
13.						
14/						
15.						

Chart No. 3-- Record of Food Served and Eaten at Home

1. Check ( ) for each day of the week.
2. Check for all meals eaten at home, plus other meals not recorded in chart 1 (it will include meals eaten downtown or at a friend's home, but not

those eaten at school).

3. Check all foods served at home only for the meals you ate at home.

Food	Mon		Tue		Wed		Thur		Fri		Sat		Sun	
	SERVED at home	eaten by me	served at home	eaten by me	served at home	eaten by me	served at home	eaten by me	served	eaten	served	eaten	at h.	eatn by me
A. Fruits (fresh canned,dried														
1. Apples														
2. Bananas														
3. Dates														
4. Figs														
5.Grapefruit														
6. Oranges														
7. Prunes														
8. Peaches														
9. Raisins														
10. Pears														
11. Pineapple														
12. Berries														
13. Cherries														
14.														
B. Breads														
1. White bread														
2. Whole wheat														
3. Corn														
4. Hot breads														
C. Cereals														
1. Whole grain*														
2. Refined**														
D. Meat and meat substitutes														
1. Beef														
2. Pork														

* Whole grain cereals--oatmeal, rice, hominy, puffed wheat
** Refined cereals--cream of wheat, grits, cornflakes

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Food	Mon served at home	Mon eaten by me	Tue served at home	Tue eaten by me	Wed served at home	Wed eaten by me	Thur served at home	Thur eaten by me	Fri served	Fri eaten	Sat served	Sat eaten	Sun served	Sun eaten
3. Ham														
4. Lamb or mutton														
5. Liver														
6. Bacon														
7. Fat meat														
8. Fish														
9. Poultry														
10.Cheese														
11. Eggs														
E. Vegetables														
1. Asparagus														
2. Beans(green)														
3. Beans(dried)														
4. Beets														
5. Cabbage														
6. Cauliflower														
7. Carrots														
8. Celery														
9. Corn														
10. Lettuce														
11. Onions														
12. Peas (green)														
13. Peas (dried)														
14. Potatoes (sweet)														
15. Potatoes (white)														
16. Turnips														
17. Turnips greens														
18. Squash														
19. Tomato														
20. Spinach														

Food	Mon served at home	Mon eaten by me	Tue served at home	Tue eaten by me	Wed served at home	Wed eaten by me	Thur served at home	Thur eaten by me	Fri served	Fri eaten	Sat served	Sat eaten	Sun serv	Sun ea
F. Sweets														
1. Preserves, JAMS, jellies														
2. Cakes, cookies, doughnuts														
3. Custards														
4. Pudding														
5. Ice cream														
6. Pies, cobblers, dumplings														
7. Sugar														
8. Syrup														
9. Molasses														
10. Honey														
G. Beverages														
1. Cocoa or chocolate														
2. Coffee														
3. Tea														
4. Water														
5. Milk														
6. Buttermilk														
H. Fats														
1. Oleomargine														
2. Salad Oil														
3 . Butter														
4. Cream														
I. Miscellaneous														
1. Pickle														
2. Nuts														
3.														
4.														
5.														

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